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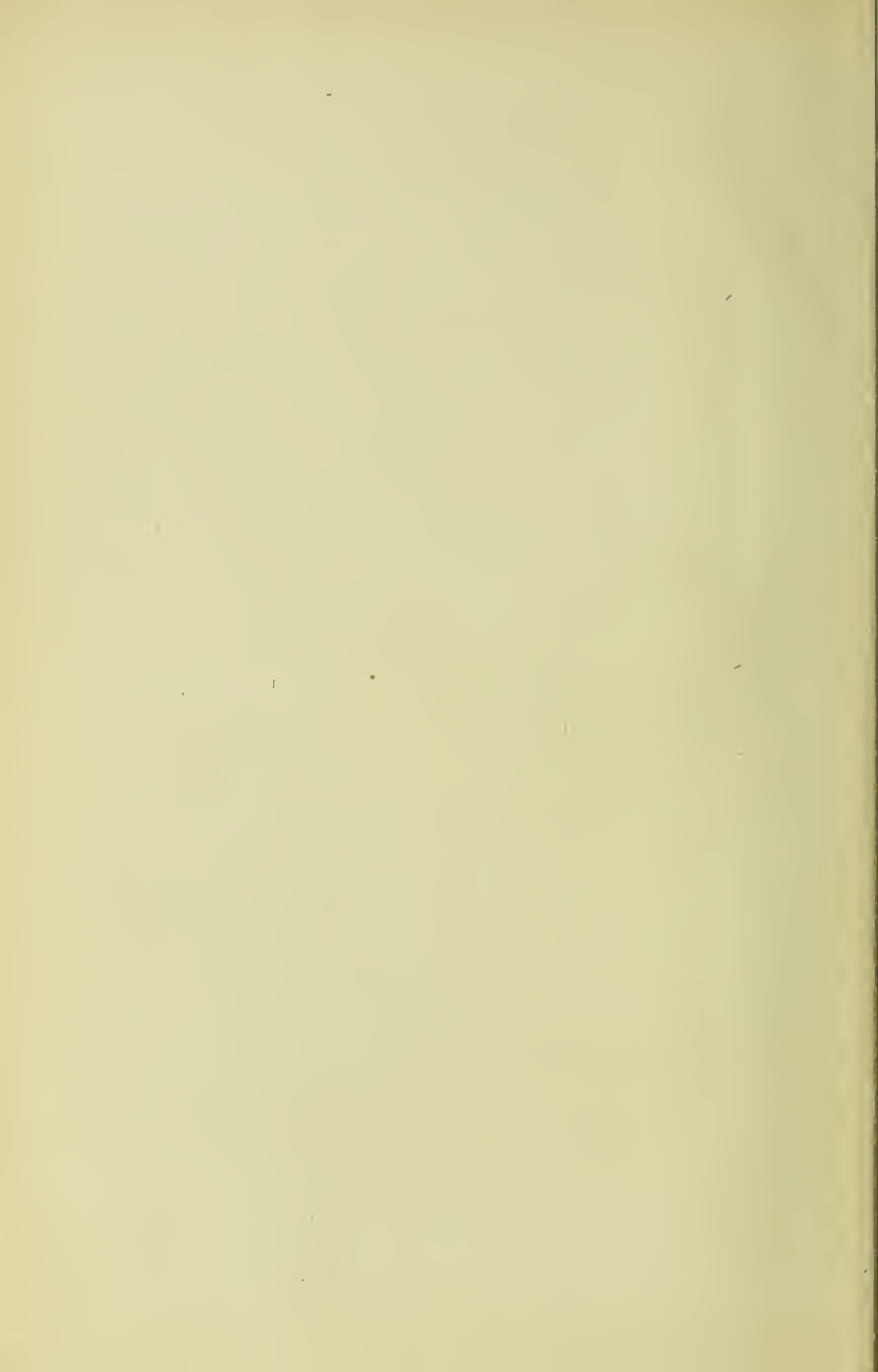








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# ILLINOIS MEDICAL JOURNAL

THE OFFICIAL ORGAN OF

The Illinois State Medical Society

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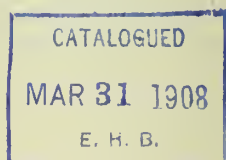
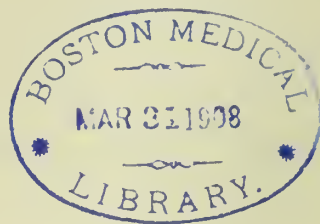
GEORGE N. KREIDER, M. D., Editor



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JULY TO DECEMBER, 1907





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VOL. XII

SPRINGFIELD, ILL., JULY, 1907

No. 1

## ORIGINAL ARTICLES

### THE ROLE OF THE GROSS PARASITES IN THE DIFFUSION OF INFECTIOUS DISEASES.\*

ROBERT B. PREBLE, M.D.  
CHICAGO.

The subject which I have selected for this evening, the rôle of the gross parasites in the diffusion of infectious diseases, has been selected partly because it has both a popular and professional interest and partly because I am convinced that the discoveries resulting from the work done along these lines are among the most important contributions which science has made to the human race. They may indeed be compared with the most important single contribution in the history of medicine, namely, vaccination. The force of this comparison is not appreciated unless one recalls conditions as they existed at the end of the eighteenth century. At that time smallpox was so widely diffused that no one expected to live his life through without at some time suffering from this disease, one which either caused death, as it did in many millions of people, or left behind it permanent disfiguring traces. Because of the widespread use of vaccination smallpox has become the least important of the infectious diseases, and most of you are unable to recall among your friends any one who has died or been disfigured by it. This will be sufficient to point the force of the comparison which I have just made.

Before making any special mention of the various diseases which are diffused in this way, it might be well to say that infectious diseases are those which are due to the action of some minute vegetable or animal parasite growing within or upon the body, as for example, typhoid fever, tuberculosis, yellow fever, malaria, pneumonia, and the like.

The most important parasites concerned in the diffusion of these diseases are the various forms of mosquitoes, ticks, bedbugs, flies, and fleas. These parasites can disseminate the infectious diseases in two different ways; they may be mere mechanical carriers, picking up the bacteria in one place and dropping them in another. This is the way in which the common house fly acts, and while it is more than possible that they take part in the diffusion of such diseases as tuberculosis, diphtheria,

\* Address in Medicine, delivered before the Annual Session of the Illinois State Medical Society, May 21-23, 1907.

scarlet fever, and the like, it is certain that they are active in the diffusion of the typhoid fever. Lighting on the excreta of a typhoid patient they take up the typhoid bacilli in part upon the feet and other parts of the body, carrying the bacilli in as purely mechanical a manner as is done in the bacteriological laboratory with the platinum loop, and in part they ingest the bacilli with particles eaten. The bacilli undergo no change in the gastro-intestinal tract of the fly and are deposited unharmed in the fly's droppings. Nor are the flies in any way injured by the bacilli which they thus take up.

Some most interesting observations along the line were made a few years ago by Dr. Alice Hamilton of this society. She was able to obtain cultures of typhoid bacilli from flies caught in the rooms where patients lay ill with typhoid fever and in the privy vaults in the neighborhood. The importance of flies in the diffusion of typhoid fever was insisted upon by the United States commission appointed to investigate the frequency of typhoid fever among the soldiers during the recent Spanish War. The importance of these observations is obvious, as are also the practical conclusions which must be drawn from them. All the excreta from typhoid patients must be protected from flies, and all food also; otherwise material will be carried from the feces to food as directly as if it were done more deliberately. Whether or not other infectious diseases are distributed by house flies has not been proven, but it is more than possible that such is the case and the same precautions are necessary in all forms of infectious diseases.

In this connection some mention should be made of the fact that the common cockroach has been accused of carrying typhoid fever, and while this has not been proven, it is probable enough to warrant thought, and the danger is sufficiently guarded against by the precautions necessary because of the flies. I would not be understood as saying that these are the most important methods of diffusing typhoid fever, for this is mainly a water-force disease, but if the feces and urine of typhoid fever patients are promptly disinfected, all manners of diffusion are guarded against. It might be well to state particularly that the urine also must be disinfected. The fact that typhoid bacilli escape in the urine, although known for years, is not fully appreciated by the profession, and is almost entirely unknown to the layman, who usually has a very thorough appreciation of the dangers lurking in the feces.

The common bedbug, annoying and disgusting as it is, is not known to be an important carrier of infection, although it is certain that it is sometimes guilty. I have personally known of some instances of local pus infections resulting from the bite, and there are some instances recorded of fatal erysipelas acquired in this way. It is possible also that some of the parasitic skin diseases are diffused in this way, as they may be also by the head louse. The most serious charge brought against the bedbug is that of Karlinski, who believes that it is an important factor in the diffusion of the relapsing fever, a disease fortunately unknown here. Karlinski worked among oriental people who believe that bedbugs, lice and other body parasites are a blessing from God, removing im-



purities from the blood and look upon their presenee as an evidenee of good health. Believing these things, it is easy to see that they make no effort to rid themselves of what are to us most annoying inflietions. Karlinski found that the bedbugs from houses in which there had been one or more eases of relapsing fever regularly contained the baeterium which is known to cause this disease, while they were as regular missed in the bugs from houses in which the disease had not occurred. This is an interesting and suggestive observation, but it is far short of a proof that bedbugs diffuse relapsing fever, and, as I will point out later, there are good reasons for the belief that this disease is spread by a tiek rather than by a bedbug.

While the faets so far mentioned are interesting, they are by no means so important as those which must be stated in regard to the mosquitoes, tieks, and tsetse fly, and let us take up first the mosquito rather than the tick, because for us the more important, although historically less significant. So far as we yet know, the mosquito has to do with the diffusion of but two diseases, both, however, of great importanee; namely, malaria and yellow fever. There are, however, several other diseases which are probably spread in the same way, such as the dengue and others, which may be like leprosy.

Malaria is a disease known to all, but it is difficult for us who live in places now praetieally free from this disease, to appreciate its frightful importanee. Not only is it the eause of thousands, hundreds of thousands of deaths every year, but what is soeiologically more important, for every death it eauses the more or less complete and prolonged invalidism of many people. If any among you have ever suffered from this disease or have lived in a region where it is eommon, you can appreciate how serious a matter this disease is. There are many miles of fertile land lying sterile beeaue its eultivation is prevented by malaria. In Italy it is estimated that many thousands die yearly and that millions of dollars yearly are lost or directly expended beeaue of it. The same thing is true of our own southern states. These faets, very briefly stated, show the importanee of any diseovery which will enable us to eontrol the spread of malaria.

More than twenty years ago Lavareau, a French military surgeon, diseovered the eause of this disease in a small animal parasite living in the blood and organs of patients ill with malaria. This diseovery materially ineased our knowledge and enabled us to make a eorrect diagnosis with ease which we eould not formerly have made at all. It, however, gave us no further ineased eontrol of the spread of the disease, for it threw no light upon the manner in which the disease was aquired. Many theories were advanced to aeount for the manner in which these organisms entered the body, but they were mere theories. For many years, long before the plasmodium of malaria was diseovered, it was suspected that the mosquito had something to do with the matter, but there was no proof of it. Fortunately, sueh proof has now been supplied and we now know that the disease is aquired in this way. There are



many varieties of mosquito, but only one, the anopheles, takes part in the diffusion of malaria. All other forms are innocuous.

The furnishing of this proof supplies a wonderful example of heroism, self-sacrifice and keen scientific observation, such as has rarely been equaled in the history of the world, and entitles the men who supplied it to all the honors and rewards which the human race has in its power to bestow, and few of them, by the way, have been awarded. The first proof was supplied by the men who volunteered to live during the spring and summer in the malarial regions about Rome. This was notoriously a dangerous thing to do, for it was known that all who did so acquired the disease, and moreover, the type of malaria common in these regions is the most dangerous of all the various types of this disease. The only conditions demanded for them were that they live in a mosquito proof house and that they were always within doors before sunset. This last specification was made because the anophele mosquito bites only after sundown. These men all escaped malaria, and that, too, though they worked in the soil and drank the water used by the people of the region. A second proof was supplied by shipping infected mosquitoes to England, where malaria is practically unknown, and there exciting malaria in people who had never had the disease, by allowing these mosquitoes to bite them. Both of these experiments have been repeated in many places by many observers, and in all instances the conclusions have been confirmed so that the fact may now be accepted that malaria is acquired through the bite of this particular form of mosquito and this one only. Whether or not the disease may be acquired naturally in any other way is yet unknown. It is possible, but if there is any other way, it is unimportant. It is also uncertain whether an infected mosquito can transfer the plasmodium to her young. This is possible, but lacks proof in spite of the efforts which have been made to prove or disprove it.

In much the same way proof was brought that yellow fever was spread by a mosquito, but by a different one. This idea also was an old one, advanced by men who drew a correct inference from their observation, but it remained for an American commission in Havana to furnish the proof. Men volunteered for the service and were exposed to yellow fever patients, to their excreta, and slept in their beds, but were carefully protected from the mosquito, and in no instance did they acquire the disease. Later they were exposed to the bite of mosquitoes which previously had bitten yellow fever patients, and in this way acquired the disease. Some of them unfortunately died of the disease thus acquired, heroes in the very highest sense of the word. The whole world rang with the bravery of Hobson and his men, and far be it from me to minimize their efforts, but how much more truly brave were those who, in the quiet of the hospital ward, far from the limelight of publicity, braved death in far worse form than on the field of battle, and how infinitely more important to the human race are the results of their death. I think I am safe in saying that the most important result of the Spanish war was the demonstration of the relation of the mosquito to the spread of yellow fever. Because of the practical application of this fact it has been possible to free

Havana of this disease, although up to the time when the destruction of the mosquito was seriously undertaken that city was never free from this disease, and there were annually many deaths due to it.

The prevalence of yellow fever in Cuba was a constant menace to the lives and property of those living in our southern states, for at irregular intervals the disease broke out in the south, causing many deaths, and because of the interference with commerce, serious property loss. Once the disease broke out, it continued until cold weather set in, thus doing what now we deliberately try to do, namely, to destroy the mosquito. There has been but one outbreak of yellow fever in this country since the discovery of these facts, and their application enabled the health authorities to confine the disease and shorten the epidemic as they never were able to do, when their efforts were confined to the fumigation of infected quarters and the establishment of quarantine.

Another result of these discoveries in regard to malaria and yellow fever is the Panama canal. Efforts have been repeatedly made to build this canal, but all have hitherto failed, not because of engineering difficulties, great as these may be, but because it was not possible for men to live and work in the country. The present attempt is succeeding, not because of the superior ability of American engineers, but because men are now living there free from malaria and yellow fever. In fact the sanitation is there so perfect that the morbidity and mortality is lower than in any city in the temperate zone, and the two terrors of the country are conspicuous by their absence.

Only two things are required in the practical application of these discoveries, first the destruction of the mosquito, and second, the prevention of the infection of such mosquitoes as escape destruction. The destruction of the mosquito is easy or difficult in direct proportion to the number of breeding places which exist. For breeding purposes the mosquito must have stagnant water. If, then, all the places where water stagnates are filled up or drained, the mosquitoes must disappear. If, as is often true, places exist where neither of these two things can be done, the water must be coated at intervals with thin films of kerosene oil. This prevents the young mosquito from reaching the air to breathe, and it is thus suffocated.

The second requirement, the prevention of the infection of the mosquito, is in part easier and in part more difficult. Were it possible to put every one with yellow fever or malaria under screens so that no mosquitoes could get at them, it would not make any particular difference how many mosquitoes were about. This is impossible, for many patients with yellow fever and malaria are not ill enough to at once apply for medical aid, and even if they did the correct diagnosis is often difficult. This is particularly true of the yellow fever, the first cases of an epidemic often passing unrecognized, and thus supplying material for the infection of many mosquitoes. It is therefore necessary for us to try both to destroy the mosquito and prevent the biting of all patients with yellow fever or malaria. The more perfectly both of these are done, the more completely both diseases will disappear, and even though neither effort

is perfectly successful, if continued year after year, complete success will eventually be obtained.

The yellow fever is the more easily controlled, for experiment and observation have shown that the mosquito can suck up the infecting agent only during the first three days of the disease. Later than this a yellow fever patient is not a source of spread. Quite the opposite is true of the malarial. The plasmodium causing this disease is difficult of destruction, and as long as it is present in the circulating blood of a patient, as it may be even though the patient feels perfectly well, the mosquito may become infected.

There is in Africa a widespread disease known as the sleeping sickness, fatal, and so common that it is depopulating large areas. It is unknown in this country, and not often seen in the whites living in the regions where it is common. The disease is, however, spreading to regions where it was formerly unknown. It is due to a small animal parasite living in the blood and known as the trypanosoma. Organisms of this same type are known to be the cause of a variety of destructive diseases of horses and domestic cattle in these and similar regions, and it has been found that these animals acquire the disease through the bite of a fly known as the tsetse fly. The sleeping sickness of the negro is spread in the same way, and protection from this fly provides protection from the disease.

Within the last year Koch has convinced himself that relapsing fever, another disease of importance, is spread by the bite of a certain tick, and is convinced of another fact which is of importance; namely, that the young of the infected tick are also infected and are capable of diffusing the disease. This recalls the work done upon the spread of the Texas fever of cattle. It has been known for years that this disease is spread by a tick and that the young of the infected tick are also infected. This gives Koch's statements a probability which they otherwise would not have.

In certain parts of this country there is a disease known as the mountain or spotted fever. The causal organism of this disease is unknown, but it is highly probable that it is diffused by a tick.

The dreaded bubonic plague is known now to be opened by the bite of a flea which lives on the rats. Whether or not this is the only way of spread is yet questionable, but it is certainly spread in this way.

There is no doubt other diseases spread by means of these and possibly other insects, and while we are fortunate in not being directly affected by many of these diseases, we can still appreciate the importance of these discoveries. They place these infectious diseases in a group, apart from the contagious diseases. With the latter the infectious agent and a susceptible individuality only are necessary, but with the former the infectious agent, an intermediate host and a susceptible person are required.

All of these intermediate hosts are large enough to be seen and we

can much more easily protect ourselves from them than from the microscopical parasites which actually cause the disease, and when once they are completely destroyed, or when both the sick and the well are perfectly protected from their onslaught, these diseases will disappear.

103 State Street.

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## ACHYLIA GASTRICA AND ITS RELATION TO DIARRHEA.\*

FRANK BILLINGS, M.D.

CHICAGO.

In 1892 Einhorn suggested the term achylia gastrica for the condition in which there is a failure of secretion of gastric juice in its entirety. The condition means an entire absence of secretion of gastric juice, including HCl, pepsin, rennin, etc. It was recognized as existing in conditions of atrophy of the mucous membrane of the stomach, as occurring in some forms of chronic gastritis, in carcinoma of the stomach as well as of more remote organs, in grave nutritional disorders like pernicious anemia, etc. In recent time it has been recognized as occurring in neurotic conditions without any appreciable morbid anatomic condition of the stomach mucous membrane.

Atrophy of the glands of the mucous membrane of the stomach and of the intestine occurs in practically all patients suffering from pernicious anemia. It is not an uncommon accompaniment of carcinoma of the stomach, but does not exist in all cases. It is a remarkable fact that carcinoma of remote organs will sometimes produce an atrophic condition of the mucous membrane of the stomach. Primary atrophic gastritis is a rare affection.

Achylia gastrica of neurotic origin is a much more frequent condition than the literature would indicate. That is, a condition exists in many neurotic individuals in which the gastric secretions are absent. Doubtless in many neurotic individuals there is at first a diminution in the secretion, perhaps a subacidity only or there may be an entire absence of HCl secretion, the pepsin and rennin being present in lessened amount. In most of these neurotic individuals malnutrition results from the condition and it is not unusual to find lessened weight and secondary anemia of varying degree. Not infrequently achylia gastrica exists in the neurotic without symptoms, and even in pernicious anemia with achylia gastrica the patient may not suffer from any apparent disturbances of digestion excepting the usual lessened appetite and power to take large meals. In achylia gastrica associated with organic disease, like cancer, and with conditions of malnutrition, like pernicious anemia, the symptoms due to the underlying cause are more prominent and not infrequently may obscure the symptoms referable to the absence of the stomach secretions.

In achylia gastrica of neurotic origin the patient frequently complains of lessened appetite, a sense of oppression and fulness after eating, more

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or less gaseous eructations, and, in many instances, of diarrhea. Many patients will give a history of diarrhea occurring at irregular periods for years. The diarrhea is characterized by the fact that it usually occurs without pain, but there may be colic. The stools are large, frequently gaseous or frothy, and contain visible particles of undigested food. Not infrequently the first discharge of the day occurs early in the morning. A hearty meal is apt to be followed by a desire to evacuate the bowels within an hour or less. Nausea and vomiting are unusual, but vomiting may occur in some individuals. In the achylia due to cancer of the stomach the digestive disturbance is that of the primary disease. Vomiting is unusual in pernicious anemia, but many patients suffering with pernicious anemia give a history of attacks of diarrhea. In those individuals who have achylia gastrica associated with atrophy and weakness of the stomach wall with or without dilatation, there may be some retention and consequent vomiting. In the individuals of neurotic condition, vomiting is most unusual and occurs probably in those only who suffer from the associated malnutrition and myasthenia of the stomach.

The diarrhea which occurs so characteristically in some patients is absent in others, and in all probability the absence of the diarrhea is due to the fact that the intestinal digestion is sufficient to compensate for the entire loss of the stomach digestion, and consequently no diarrhea occurs. The occurrence of diarrhea is doubtless due to a disturbance of the mechanism of the pylorus from the absence of acid gastric juice. The fact has been established that the closure and opening of the pylorus is regulated through the nervous mechanism of the duodenum and stomach. The presence of acid chyme in the stomach and of alkaline secretion on the duodenal side causes a reflex opening of the pylorus. The escape of acid chyme into the duodenum again causes a reflex which closes the pylorus. When the acid chyme in the duodenum has been neutralized by the alkaline digestive juices of the intestine, the reflex again causes a relaxation of the pylorus and more acid chyme escapes from the stomach.

In the absence of gastric juice or acid chyme in the stomach, the alkaline duodenal contents may so act that the pylorus is kept so constantly open that the non-acid gastric contents escape rapidly into the intestine. This is evinced by the fact that in an achylia gastrica the test meal may have passed entirely out of the stomach within a half hour and the stomach is found empty at the usual time for aspirating the meal from the stomach. The acid chyme in the stomach and duodenum not only regulates the mechanism of the pylorus, but the acid chyme in the intestines stimulates the secretion of the intestinal and pancreatic secretions, thus aiding the intestinal digestion. In the absence of the acid chyme, there is the absence of stimulation of the digestive secretions in the intestine and intestinal digestion may be embarrassed by an overwhelming amount of food and by an inadequate amount of ferments to do the work. In some individuals in spite of these conditions, the intestine is capable of taking care of the large amount of food thrown into it in a short period of time and no recognizable symptoms of the condition occur. In many others the diarrhea described above results.



The condition is recognized readily if one obtains a coherent history of the patient's life, and if one makes careful examinations of the stools together with an examination of the stomach contents after an ordinary test meal. If achylia gastrica is found, it is, of course, necessary to make careful examination for the underlying cause. If due to organic disease, such as carcinoma, or to atrophic gastritis without other organic disease, or to pernicious anemia, the general symptoms of those diseases will be usually present. If due to a neurotic condition, the absence of the evidences of organic disease and the recognized neurotic condition of the patient will enable one to make a diagnosis. The condition is one which is frequently not recognized in the neurotic individual. It is my purpose to emphasize this fact.

The following histories are good examples of achylia gastrica associated with neurotic conditions in individuals with and without malnutrition:

Mrs. A. D., age 46, married, two children, presented herself Dec. 5, 1906. Her mother and one maternal aunt died of tuberculosis. She has a son who has chronic diabetes. When she was about twenty years of age she suffered from a diarrhea lasting for four years and during that period was said to have had some lung trouble for which she moved to a dry climate and after two years was pronounced well. The diarrhea of that period occurred without pain or griping and usually the first bowel movement was early in the morning. At that time she received colonic flushes with benefit. Following this she was in a good condition of health until two years ago when a diarrhea of the same character recurred. The trouble is not continuous but is much worse at some times than others. It is worse if she eats large amounts of vegetables or fruits. The stools are large, soft and have not contained visible blood or mucus. As a rule she has had half a dozen movements in the forenoon, the first at about 5 o'clock in the morning. There has been usually no pain. During the summer of 1906 she was troubled with sick headaches associated with blurring of vision for ten or fifteen minutes at a time. A physical examination revealed a fairly good condition of general nutrition, some pallor of the mucous membrane and skin. No evidences of disturbances of the special organs of sense. The teeth in good condition and tongue clean. The lungs and heart normal. The abdominal wall very lax. The spleen not palpable. The liver palpable but of normal consistency. The stomach inflated, occupies a normal position and distention causes no pain. The colon palpable throughout its entire extent and apparently filled with liquid and gas. The urine upon several examinations found to be normal. The blood showed 4,256,000 reds, 77 per cent. hemoglobin, 6,300 whites. The stool examined showed a disagreeable foul smelling, brown, soft mass. No blood or mucus present. The stools contained much undigested material, consisting of muscle and vegetable fibers, starch granules and fat. An analysis of a test meal given in the early morning and withdrawn in one hour shows 50 c.c.s. of coarsely granular material which was slightly acid to litmus. The total acidity was 11°, no free HCl, no acetic acid. The Weber test for occult blood negative. The rennin test for coagulation of milk and the egg albumin test for pepsin showed entire absence of these ferments. The repeated examination of the stools and other test meals confirmed the first examination. The patient was placed in the Presbyterian Hospital, Chicago, and kept in bed from Dec. 27, 1906 to Feb. 1, 1907. During this period she was placed upon soft foods consisting of soft eggs boiled, poached or in the form of custard, cream and milk toast, breakfast foods with milk, cream soups, purees of beans and peas strained through cheesecloth. These foods were given in small quantities every two hours at first and as the bulk was increased, the interval between was lengthened to three hours. After a

time a little stewed meat of veal, lamb and chicken was added. The excessive peristalsis, which is usually present in these patients, was lessened by the use of hot fomentations upon the abdomen, at first constantly and later for periods of an hour or more, three or four times a day. She was given tincture of chlorid of iron in 15 minin doses three times a day. Colonic flushes with normal salt solutions were used each day to keep the colon empty of undigested food. Under this treatment the patient improved. On January 18, a test meal showed a total acidity of  $34^{\circ}$  which consisted entirely of the combined HCl and acid salts. The rennin test showed that milk would coagulate in the dilutions of 1 to 10 and 1 to 20 but there was absence of coagulation in the dilutions of 1 to 40 and less. The stools upon the diet named became less frequent and contained much less undigested material. On January 30, the blood showed 4,960,000 reds, 90 per cent. hemoglobin, 10,200 whites. The patient returned to her home in Michigan and reports from her physician show steady improvement with, however, continued attention to the diet in the sense that small meals are taken and food which contained much vegetable cellulose and fibrous material of animal origin is not used.

Mr. W. L. D., age 32. American employed in the Stock Yards, Chicago, presented himself on Dec. 30, 1906. The history showed no former disease of importance and the family history good. In September, 1906, the patient began to have a diarrhea with frequent bowel movements. The movements are more frequent in the early morning, usually one or two movements before breakfast. Occasionally a loose stool occurs in the evening. The movements are liquid, but he has never noticed blood or mucus. Occasionally there is burning in the rectum after the stool. There is no pain. He belches some gas occasionally but has practically no stomach trouble. It has seemed to the patient as if the food passes at once into the lower bowel. There is no vomiting or nausea. A month ago the diarrhea was worse for a time and he then suffered from some headache and was in bed for a week. He has lost thirty-seven pounds since September. His appetite is good. The physical examination showed a well developed and fairly well nourished man, 6 feet 1 inch in height, weight 162 pounds. No physical evidence of disease could be found anywhere upon a careful examination. The urine is normal. The blood shows 4,976,000 reds, 91 per cent. hemoglobin, 6,400 whites. Blood pressure 108 mm. The stools show the presence of a large amount of muscle and vegetable fibres, starch and fat, without blood or pus. The stool is alkaline. After an Ewald test meal, in one hour 60 c.c.s. of a tenacious and granular mass of light brown color was aspirated. This was acid to litmus and showed a total acidity of  $6^{\circ}$ . No free HCl and no organic acid. There is no digestion of egg albumin and the test for rennin shows no coagulation of milk.

The diagnosis was achylia gastrica due to nervous unbalance from overwork. The patient was placed in the hospital at rest in bed. The treatment as to diet was that related in the last case together with hot applications over the belly and daily colonic flushes.

On January 10, a test meal showed a total acidity of  $28^{\circ}$  without free HCl with the presence of a slight degree of pepsin digestion and slight coagulation of milk with the rennin test. On January 18 it showed a total acidity of  $26^{\circ}$  without free HCl with an increased pepsin digestion of egg albumin and a greater degree of milk coagulation with the rennin test. The diarrhea had entirely ceased. The patient felt well. He was advised to go south for a longer period of rest. No further analysis of his stomach contents have been made, but he has reported, a week ago, that he has had no further diarrhea.

Miss E. W., age 45, American, schoolteacher. Came on Dec. 15, 1906 with the following history: father and mother both of nervous temperament and evidently neurotic. No evidence of disease of hereditary character in family. In 1893 patient had an attack of diarrhea with pain in the abdomen which lasted for a short period of time. In October, 1906, she was seized with a diarrhea

which began with cramping pain in the abdomen which has continued since that time without cessation. There are profuse watery stools numbering four to six in the 24 hours. The first stool occurs in the early morning. If she attempts to eat a hearty meal the bowels move soon afterward with more or less colicky pain. During the earlier part of the disease the attacks were more severe in the sense that the stools were larger and there was more pain. With a selected diet the stools have been smaller, the pain less. There has been occasional nausea but rarely vomiting. The appetite has failed and the patient has lost ten pounds since the beginning of the trouble in October. She is very nervous, easily irritated by small matters and frets about her condition. The physical examination showed rather marked pallor of both skin and mucous membranes. There was no evidence of lung disease and the heart appeared normal in size and there were no murmurs. The liver palpable but normal to touch. Spleen not palpable. Considerable tenderness over the abdomen without evidence of lesions in the intestine. The stomach inflated occupies a normal position and inflation does not cause pain. The greatest amount of tenderness appears to be along the course of the colon. The blood examination showed 2,968,000 reds, 70 per cent. hemoglobin, 3,200 whites. A differentiation of the whites showed 60 per cent. of small mononuclear lymphocytes, 4 per cent. of large mononuclear lymphocytes and 36 per cent. of polynuclears. No nucleated cells were found but some of the red cells were abnormally small. This shows a marked anemia of the pernicious type; the color index being 1 plus. After a meal given in the morning and withdrawn in an hour, the stomach was found almost empty, as only 12 c.c. of fluid were aspirated, which showed, with phenol-phthalein, a total acidity of 7°. There was no free HCl and no lactic acid. The microscope showed the presence of tissue fibers, starch granules and a few yeast cells. A test showed the entire absence of pepsin and of rennin. An examination of the stool showed no blood, no pus. There was a considerable amount of undigested food remnants.

The patient was placed in the Presbyterian Hospital where she was kept in bed until February 18, a period of about two months. The management was practically the same as that outlined for the other patients. She was given the tincture of the chlorid of iron, 15 minims three times a day and  $\frac{1}{2}$  to 1 gr. of cacodylate of soda hypodermically once a day. Moist heat was applied over the abdomen and the colon was flushed out with normal salt solution every three or four days. Under this treatment the patient made steady and progressive improvement. Before she left the hospital she was able to sit up for hours at a time and was able to eat a very much larger amount of food. On January 18, one month after admission to the hospital, a test meal showed a total acidity of 12° without free HCl. The test for the presence of pepsin showed a slight digestion of egg albumin and coagulation of milk occurred in 1 to 10 solution in fifteen minutes. No coagulation occurred in other dilutions.

The patient went to California when she left the hospital and word recently received is to the effect that she has continued to improve steadily both in general nutrition and in the blood condition, and has had no diarrhea since she left the hospital. I do not know just the condition of her blood at present. When she was in the hospital there was an anemia of the pernicious type in the sense that the color index was always high although the blood improved while she was there. It is therefore possible that this is an achylia gastrica due to pernicious anemia, although the general conditions pointed to a neurotic condition as its cause.

O. J. B., male, age 46, an attorney. Presented himself May 15, of this year. His family history is negative and his personal history good. He reports that he has had attacks of diarrhea occurring for periods of a few weeks at a time for five years. At all times the bowels have had a tendency to be loose. The bowels usually move between two and four o'clock a. m. and early in the forenoon



there are a few large movements, after which there is no further disturbance of the bowels during the remainder of the day. There has been no disturbance of consequence of the stomach at any time. After eating there is sometimes a sense of epigastric fulness and of depression. There has been no colic and no tenesmus. He has noticed mucus in the stool but has never noticed blood. He feels better when the bowels move freely.

He has had a life of worries and frets and he has noticed that when he is undergoing the greatest mental strain he is apt to have a diarrhea. If he eats greasy things or vegetables containing a good deal of cellulose, like cabbage, cauliflower, celery, onions, string beans, etc., or if he drinks a glass of cold water, he is apt to have a bowel movement. He has less endurance and less strength than formerly. An examination shows no evidence of organic disease in any part of the body. There is a slight tenderness over the lower left belly in the region of the sigmoid. He has a double inguinal hernia and wears a truss. His blood examination shows hemoglobin 100 per cent., reds 5,300,000, whites 6,700. The differentiation of the whites show a normal condition. The urine is negative. He was sent to the Presbyterian Hospital for further observation and a test meal afforded in one hour a small amount of granular brownish fluid which was acid to litmus. The total acidity was 10°. There was no free HCl and no lactic acid. There was slight coagulation of milk in dilution of 1 to 10 but no coagulation with greater dilutions. There was slight digestion of egg albumin showing the presence of a small amount of pepsin. The patient was sent to his home with a letter to his physician with the diagnosis of achylia gastrica of neurotic cause with resulting diarrhea.

I think these cases afford evidence enough of the statement previously made that achylia gastrica exists in individuals who apparently suffer from no organic disease of the stomach and no constitutional dyscrasia or malnutrition of sufficient degree to cause it; that it may, therefore, be caused by a general neurotic condition.

Its treatment in this form consists in an attempt to improve the general nervous tone of the individual and by increasing the general nutrition by frequent small feedings of food of such a character that the unavoidably undigested remnants which may remain in the intestine will cause as little disturbance as possible. One may do this when the patient can be commanded and kept in bed, but it would be a very difficult process to carry out if the individual were permitted to be up and about. Thorough division of food by mastication is an essential of treatment. The use of bitter tonics to attempt to stimulate the stomach secretions is, of course, of doubtful benefit. The tincture of *nux vomica* in 15 or more minim doses before the food is taken can do no harm and may be of possible benefit. One can not give HCl in sufficient amount to compensate for the absence of its secretion, but one perhaps may give enough to partially control the mechanism of the pylorus. From 15 to 30 minims of dilute HCl well diluted with water should be used after the feedings. The acid may also serve as a stimulant to the secretion of the pancreatic and intestinal ferments. The retention of undigested particles in the colon may result in considerable irritation of the intestine and this may be overcome by a colonic flush used daily or every three or four days as may be indicated in each individual. Undigested food in the intestine may cause increasing peristalsis and even colic. Moist hot applications over the belly will usually relieve this.

## PRACTICAL POINTS CONCERNING ULCERATIVE ENDOCARDITIS.\*

JAMES B. HERRICK, M.D.

CHICAGO.

It has been my fortune to see quite a large number of cases of malignant, or as it is commonly called ulcerative endocarditis. Certain facts concerning the clinical behavior of this disease have arranged themselves in a little different order from that in which I had seen them when fresh from the text-books. The picture is made up of the same figures to be sure, but some of the forms stand out more prominently, others are more in the background than they were, as seen from the point of view when experience was limited to only a few cases. I wish in this brief paper to bring out, if I can, some of these facts in what seems to be their true light.

It is assumed that all admit the microbial origin of ulcerative endocarditis, and it must be granted that no very sharp line divides the cases of the so-called ulcerative type from those of the benignant form; even the anatomical distinction is hard to make. What I wish to call attention to particularly are certain clinical features that are apt to be misleading, and others that should help us to recognize the condition.

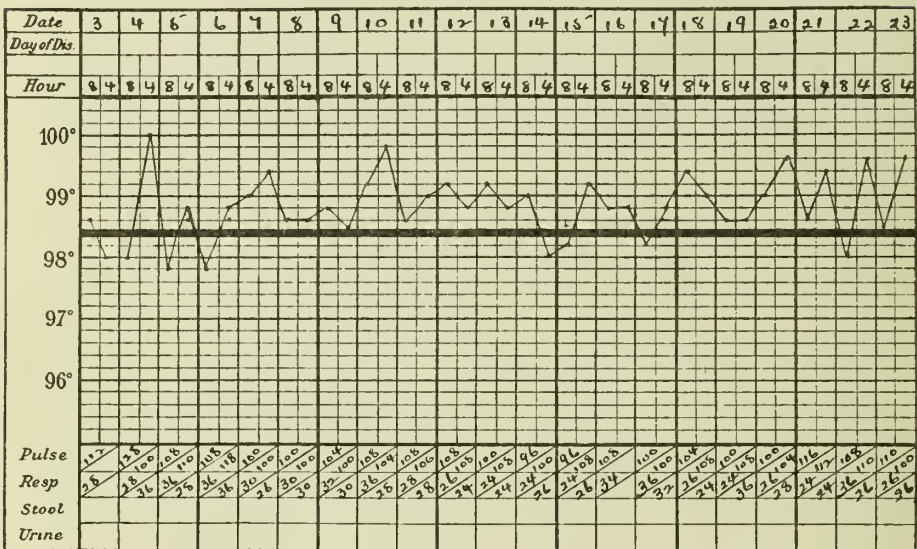
In the first place the worst stumbling block in the way of diagnosis is the fact that many times an old valvular lesion exists and has been known to have been present by both patient and physician. Familiarity breeds contempt. The old lesion is disregarded because it has for so long, years perhaps, been symptomless, and because in spite of its long familiar murmur neither pain nor other subjective symptoms of cardiac incompetence call attention to this organ, and some other explanation for the fever, chills, etc., is sought. Just as experimentally a damaged valve is prone to be the seat of a mycotic valvulitis when micro-organisms are injected into the blood stream of the animal, so with the human being the entrance of germs into the blood of an individual who has a valve already damaged by a previous simple endocarditis or by an old sclerotic process, is apt to be followed by the localization of the germs on the injured valve that is in reality a *locus minoris resistentiæ*. We should always view with suspicion a valvular lesion, no matter how long it has existed without untoward symptoms, when no other adequate explanation can be found for the infectious process that is evidently present; we should think of a lighting up of an acute inflammatory process on the injured valves. The possibility of such a condition should occur to us as instinctively as the thought of strangulation, when symptoms suggestive of ileus are present, occurs to the surgeon who knows that his patient has for a long time had a hernia.

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\* Read before the Annual Session of the Illinois State Medical Society, May 21-23, 1907. For Discussion see page 43.



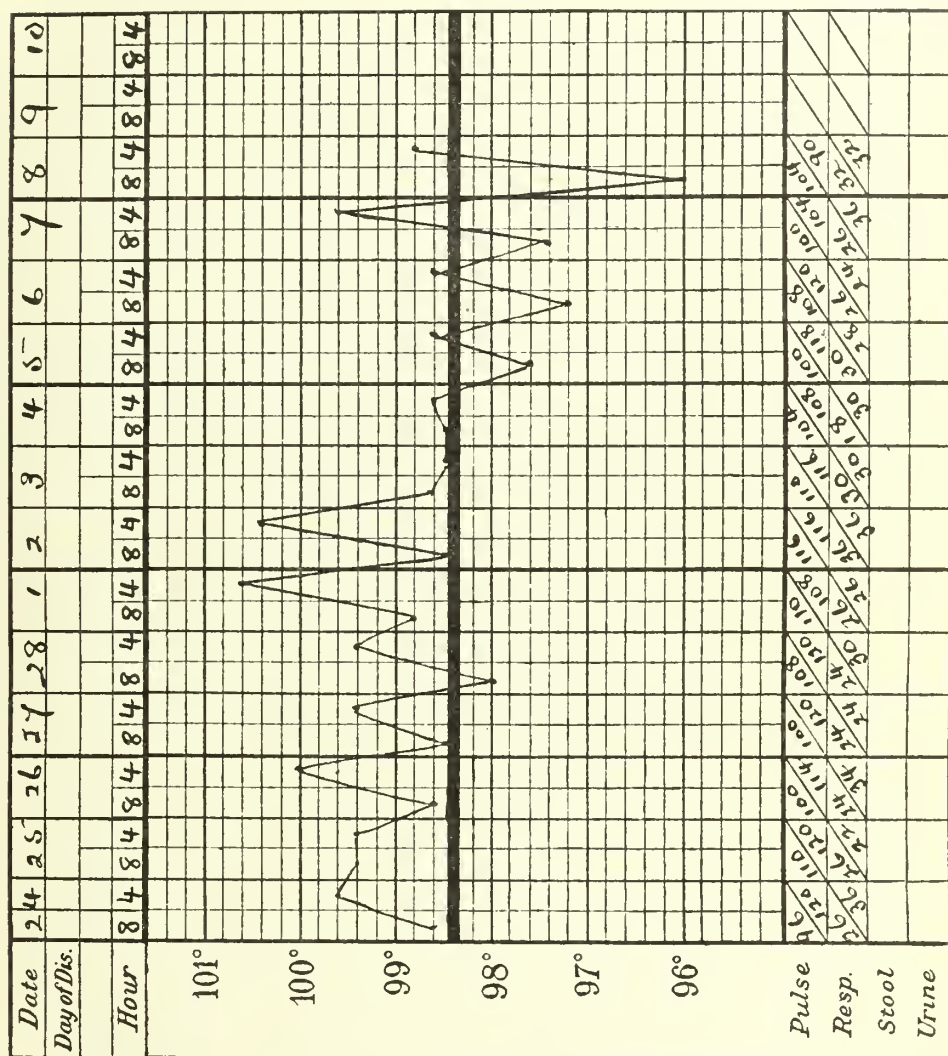
The second stumbling block is the absence of evidence of cardiac incompetence. Often when the probability of ulcerative endocarditis has been suggested the opposing argument has been advanced that the heart has not only been for a long time the seat of a recognized innocent valvular lesion, but that there has been no recent increase in its size. there is no dyspnea, no cough, no cyanosis, no edema of liver or lower extremities; in other words, the heart is competent. The fact overlooked here is, of course, that ulcerative endocarditis is essentially septic and toxic, and not mechanical. Cardiac incompetence may or may not be present; the fact that stands in the foreground is that bacterial invasion has occurred and a condition of sepsis exists, bacteria and their products being produced at the very center of the circulation.



Another source of error has been the enlarged spleen so regularly found in typhoid and malaria. It is often looked upon as confirmatory evidence of one of these diseases, either one of which may be so well mimicked by malignant endocarditis. The spleen in this latter disease is enlarged as it would be with a septicemia (acute splenic tumor). In addition it is often the seat of old infarcts, possibly has been for a long time passively congested at some period of cardiac incompetence, and may from these causes be more or less indurated. It may also be enlarged as the result of fresh infarcts and is not seldom the seat of pain and tenderness. An enlarged spleen, therefore, should be looked upon as in no sense inconsistent with the existence of an ulcerative endocarditis.

The course of the temperature is certainly at times confusing. Perhaps we have too firmly fixed in our minds the conception of the fever as either frankly pyemic with explosive irregular outbreaks of chill and

high fever, or more regularly intermittent and malaria-like, or remittent and resembling typhoid. But we should also be prepared for cases with a protracted course over many months, a remittent, or remittent-intermittent course, and with perhaps the high points only 100 to 102. To judge from the relatively mild temperature, these cases would



hardly seem to justify the use of the term malignant, but in their relentlessly progressive course the term is seen to be well applied and the anatomical changes found to be of the so-called ulcerative type. I present the temperature chart of an adult male with pronounced secondary anemia, leucocytosis, acute nephritis, petechiæ, enlarged tender spleen

and a heart the seat of old valvular lesions, but with murmurs that decidedly changed in character as he was under observation. The innocent looking temperature chart was in striking contrast to the severity of all other findings. The diagnosis of acute malignant endocarditis was confirmed by autopsy, showing large cauliflower-like excrescences on the aortic and mitral valves with extensive destruction of the leaflets, and with pus oozing from the involved tissues.

I mentioned the fact that the murmurs in this case changed quality and intensity from time to time. This is a point of some value in diagnosis, yet it does not after all deserve very much emphasis. Variable murmurs may be present in hearts, the seat of mechanical difficulties alone, and even the so-called accidental murmurs may be more or less changeable, and in rare instances the murmur in cases of ulcerative endocarditis has been declared by competent observers to have been lacking, though no such case has come under my own observation, with the possible exception of one that is still being watched.

Recently, as is well known, much help has been obtained from a study of the blood. Leucocytosis is usually present. Bacteria are often found by making careful cultural tests. A progressive marked anemia of the secondary type has been a very striking feature of many cases and has been of especial value in differentiating from typhoid where the anemia is seldom so pronounced, unless it be late in the disease or following hemorrhage.

I need scarcely refer to the importance of careful search for petechiæ. Even a few of these may be of great help in diagnosis. They are sometimes found only after careful search and may be hard to identify, though I have been surprised at times to see how crops of scores and even hundreds of these minute extravasations have been under the eye of the physician and have escaped notice, at least as having any significance. Examination of the retina and of visible mucous membranes may reveal hemorrhages.

In a few cases I have met with a phenomenon that is casually referred to by some writers, but that seems to me worth considering. Patients with ulcerative endocarditis have complained of pain in a finger, the palm of the hand, the sole of the foot, or about the ankle. They commonly refer to it as rheumatic. The pain has come on rather suddenly and at the seat of pain is found a reddish, swollen, rather firm, tender area, varying in size from one-half a centimeter to four or five centimeters in diameter. The joint proper is not involved. Periarticular structures, the tendon sheaths, the subcutaneous tissue, or the muscle seem to be the seat of this local lesion. Presumably it is embolic. It disappears in a few days.

The more common embolic phenomena in the brain, kidneys, spleen, peripheral vessels, with their resulting paralyses, gangrenes, etc., need not be mentioned. One point, perhaps, might be referred to. Not every embolus, though it be mycotic, produces suppuration. The one most apt

to do this is the embolus from a staphylococcic endocarditis. Pneumococcic, streptococcic and gonococcic cases cause metastatic suppuration less frequently. Reference to the gonococcus leads one to emphasize what has become now a well recognized fact that the gonococcus not infrequently produces a septicemia, and that a gonococcic valvulitis, with the disease oftentimes of the fatal ulcerative type, is not such a rare condition after all. I have seen two instances of fatal acute gonorrheal endocarditis.

One might dwell upon the differential diagnosis from malaria, typhoid fever, and ordinary pyemia, but my purpose in this paper has been rather to call attention to a few facts that have seemed to me were apt to be overlooked or viewed in a wrong light, than to present any complete picture of the disease. So in the way of differential diagnosis, I would refer to only three conditions from which differentiation may at times be necessary, and which I have seen cause confusion. The degree of anemia has been so profound in one or two instances that the question of pernicious anemia had been raised, a condition in which fever, cardiac murmurs, enlarged spleen, hemorrhagic tendency, may be present. The history of the case, the differentiation of accidental from organic murmurs, paresthesiæ and other evidence of spinal cord involvement, and above all, the careful study of the blood showing high color index, megaloblasts, etc., will generally straighten out the diagnosis.

A complicating nephritis may cause one to overlook the primary infectious endocarditis. If one lives up to the rule of trying to find the cause in every case of acute nephritis and of careful examination of the heart, one will seldom be in doubt as to the existence of endocarditis and an acute infection.

Pulmonary tuberculosis may be very closely simulated; slight cough, with a few râles accompanying bronchitis or beginning cardiac incompetency, chilliness with fever following, loss of weight, anemia, rapid pulse, may warrant the suspicion of tuberculosis, the previously existing valvular disease being regarded as harmless. Only careful study of the temperature, sputum, blood, heart, spleen, etc., will permit an early and positive diagnosis to be made in some of their cases.

In conclusion, one must hope that the antitoxins, serums, or vaccines for the causal organisms of this serious disease, will soon be discovered. If they are discovered the duty of early recognition of ulcerative endocarditis, together with the micro-organism producing it, will be still more urgent than it is to-day. For while to-day a small proportion (an extremely small percentage surely) of these patients may recover, a specific therapy would offer much greater hope and would impose on the physician the task of as early a diagnosis as possible so that recovery might be brought about before destructive changes had become marked.



INTERSTATE MEDICAL RECIPROCITY AND OUR DEGRADED  
CERTIFICATE.\*

S. T. ROBINSON, M.D.

EDWARDSVILLE, ILL.

*Mr. President and Ladies and Gentlemen of the Society:*

In whatever direction my paper may lead, let me say at once that its sole purpose is to discuss policies. While I differ greatly from the state board and its secretary on the question before us, I yield to no gentleman here in dutiful regard for the board, in appreciation of its well-earned prestige, in respect for the executive to whom the honor is due. Therefore, as I shall approach my subject as one of urgent self-defense, let it be understood clearly that, however trenchant my words may become these words are always for the debate, and never for the individual. Let us also remember, as another has said: "Men may, I find, be honest, though they differ." One more point of preface. With the licentiate under our present law I have nothing to do. I believe he is being treated fairly enough; certainly he knew beforehand the conditions as we older men did not; afterward the discrimination is in his favor. Hence I speak concerning the old practitioner alone, the man whose certificate antedates the present law.

We now come to our subject proper, and it appears at once under two principal heads, the legal and the ethical. The former has been fully discussed by Dr. Egan, and I need here only summarize his more important conclusions, while adding a fifth one of my own.

*First.*—The sole right of the state both to license and to impose the conditions.

*Second.*—The impossibility, as matters stand, of delegating this right to any national or central body.

*Third.*—The right of the State Board, as the state's executive, to add, under its general powers, supplemental conditions.

*Fourth.*—The recognition of any existing reciprocity as purely a mutual agreement between two state boards, arranged entirely through the powers and rights accruing under the third heading.

*Fifth.*—The utter helplessness of the individual practitioner who happens to stand without the pale.

In commenting on these conclusions, it may be said at once that the first and second appear unimpeachable. In other words, "the right to practice medicine is not a privilege of citizenship," but is a special vocation which "concerns the preservation of the lives and health of the people." As such it is a creature of the state in which it is exercised, and is amenable always to its police power as defined, or supposably defined, by special executives; for police power, let me remind you, is a very elastic function. Like a grippe diagnosis, it can on occasion be made to do yeoman's service, and lawyers smile when it is brought into a discussion. In fact, the State Board itself, in this very matter of reci-

\* Read before the Annual Session of the Illinois State Medical Society, May 21-23, 1907. For Discussion see page 46.



proeity, gives a glaring example of such elasticity, as I shall presently show.

We now reach Dr. Egan's third conclusion. While the law says not a word about reeiprocity, the practice does exist, consequently there must be a means of instituting the same. That it can not be enforced between unwilling states, that each state can deny the practice or accept and regulate it at will—i. e., at the will of its board of health—are facts made clear partly by what we have already considered, but more so by the regulations actually in force. Mind you, I said regulations, not statutes, for we need precision here. How, then, does the present day reeiprocity, with its stringent regulations, come about? The answer, in the language of the secretary, is at hand, to-wit: "The Illinois State Board of Health reciprocates, not under any specific authority of law, but under its general powers." Mark the language, "under its general powers;" and then, with some of the regulations in mind, let us hark back to the previous statement that police power is frequently a very elastic function. That it can be made exceedingly accommodating by an autocratic board, that its interpretations, with contraction here, expansion there, are as varied as the will of the board, becomes evident as we study the question in its different phases over the country. Illinois will—sometimes, and Texas is easy, but New York won't, and California is thoroughly independent, and all done through interpretation of police power. Could anything be clearer than the ease and convenience with which the average board adapts its power to work its will? And the method is, no doubt, strictly legal. But is it equitable? If the law's silence is warrant enough for the assumption of general powers, is it fair to find such powers in one direction, then deny the right to find them in another direction? Is it mere coincidence that, in turn, the assumption and the denial both accentuate the board's power, under an elastic police regulation? The matter thus resolves itself—is the attitude assumed toward the older men by those of the profession now in authority, conformable to right and justice in the moral and natural sense, rather than in a legal sense? This, ladies and gentlemen, is the larger question, and, like any verity, it will not down, nor can it be laid by citing state laws and constitutional limitations.

We come now to one of the most vital features with which we must deal—the regulations imposed upon reciprocity. It is sufficient to consider only the position of the Illinois board, because upon it most of our contention hinges. Let me here again quote Dr. Egan's own language, to-wit: "Reciprocity, however, is impossible on any other basis than after an examination, for the medical law of Illinois requires an examination." Here, then, we have the dictum that actually degrades every certificate issued before the enactment of the present medical law. I use the word "degrade" advisedly, because no certificate in the state, save only those issued under this law, confers to-day an unabridged right and courtesy in practice. Once upon a time the possessor of such a certificate never suspected any limitation thereof could be possible; to-day it trails a pretty stout string that ends at Springfield, while the

young graduate, last summer's modest neophyte for instance, is footloose, the proud and exultant possessor of a distinguishing privilege that very many of this audience have absolutely no right to claim.

The one man is a newcomer, wholly untried, with nothing against him, yet with nothing newer in his favor than some shallow philosophy; the other man has borne the toil of the day for lo! these many years, and now behold his degradation! "Man's inhumanity to man—," how the uncanny contrast awakens the immortal Scotchman's words!

For gross injustice is the kernel of the whole matter—that is the grievous wrong that has been done. After twenty-six years of practice I am entitled to speak from the standpoint of the older man, and I earnestly protest against this virtual classification of practitioners that has been unjustly and unwisely brought about. And how? Why, by police power, by board regulation, by facile interpretation of a law that, in spirit at least, was never intended to abrogate any right, actual, consequential or implied, of the old practitioner. At least, I am persuaded that there are not a few men who do regard the matter in that light.

Here it may be pertinently asked, if our veteran has a grievance, if he has been wronged, why not appeal to the courts for a remedy? Simply because the question is so subtly involved that such recourse is impossible. To illustrate: An application to practice in Missouri under a reciprocal relation—if such existed—could not possibly, in a legal sense, be made to involve the Illinois board, though at bottom the Illinois decisions and precedents may be, and unquestionably are, of great influence upon other boards. In such a case the Illinois board will tell you, politely of course, but plainly enough, "The matter is entirely out of our jurisdiction; get out!" Then turn to Missouri and they'll retort: "Why, man, you never did have any rights over here, and your own state is the most intolerant of all. Get out!" So there you are, for you can not sue to recover a right that no one in the old days ever supposed would need legal recognition in Illinois, or a right you never possessed in Missouri, except as it may have been possessed by tacit consent. If now, in despair, you claim that Illinois is doing you an injustice in the retroactive effect of the present statute, the lawyers will advise that the law, as it now stands in Illinois, takes away nothing from the "old practitioner;" it simply confers an added right to the newer set of men. Hence, there is no legal remedy, they tell me.

But twist the circumstances as one may, defend, explain or apologize for them as only the interested casuist can, the fact remains still that the present law, in its ultimate effect, is virtually retroactive upon the standing of the old practitioner; while, *per contra*, retroactive laws have never held in America. Such laws can live only when, like our present enactment, they artfully avoid direct injury. For herein is the cunning speciousness of our statute, or the interpretation of that statute—choose which you will; it plausibly gives to a newer set of men a right that formerly all enjoyed without express legal acknowledgment of the right; at the same time, in creating conditions particularly favorable to the newer set of men, and by silence regarding the older set, the law works

retroactively on these latter, who, like the squatter, never dreamed the sovereignty would be contested. Furthermore, the law owes its life not only to avoiding direct retroactive injury, but to its controlling a special field wherein it is upheld by a powerful faction whose interest is by no means beyond suspicion; while the more extensive element whose privilege has been curtailed are scattered, uncertain of what they want, indefinite, and asleep to their rights. Let me repeat: Nowhere else in free America than in a special and narrow field like medicine, wherein the popular will seldom or never enters, could such a situation long obtain; for the misfortune is that only the practitioner who has had an actual experience with the law awakes to its real degradation. Then he realizes that other cold, unsympathetic fact, that a boy of last summer's birth into the profession takes precedence in privilege over the veteran—over him who has long paced the firing line, with its innumerable chances, in the never relaxing fight with mortality. In what other profession is such a state of affairs possible? True, in the army one man is occasionally jumped over others; but this is rare, is oftener than not due to signal merit, yet is always frowned upon, is never justified as a rule, always as an exception. In Illinois, however, the contrary holds good, and is speciously defended. I challenge them to name me another profession where such a deed is done, and (let me whisper the word) it takes doctors to do it to doctors! The men who are never deaf to the calls of charity, the men whose sympathies should be the keenest, the men whose pole-star has ever been the good of their brothers—some, at least, of these men, in their mistaken zeal or love of power—(God grant it be their zeal!)—have not hesitated, first to put a sleeping colleague helpless, then to strip him of something he prizes. Think of it—think of this veteran—and how in the evening of his career, when his physical powers are dimming, when his memory and other acquisitional faculties are not so keen as the youth's; but when, on the other hand, his observation, and experience, and judgment are ripe, when all his subconscious faculties are in full fruitage—in short, when at last he has gained some of the traditional wisdom of gray hairs, that even savages respect, his certificate turns out to be a degraded paper, with newly imposed limitations that now separate him from the elect, and he holds, instead of the unblemished emolument he thought he possessed, a—a—a—a lemon!

Again I ask, Is this state of affairs equitable? Is it conformable to reason and justice in a natural sense, as apart from the legal and artificial sense?—in the sense of the man who lives upright and pure because it is sweet to him to be upright and pure, and not because the law commands it? This, gentlemen, this equity, is the larger question, and, as I said before, it will not down! And yet the lawyers aver that all such considerations are of no avail, since the legal stand of the board is sound. Hence, Dr. Egan appears to be absolutely correct in his views, unless we except those on general powers, and the exception would concern only their interpretation. Moreover, this latter feature is under the board's full control, so that the situation, as set forth by the secretary, must be regarded as the present legal one. No unbiased man who has given the



subject any study at all will contend otherwise. We may, therefore, seem to have come to a dead line, to a cul-de-sac, beyond which we can not go; and, in the eloquent language of a legal light, it might now be asked, "Well, what's all the fuss about?"

Why, it's about this other fact, that a thing may be legally right, yet easily become a source of wrong; in other words, it violates the equities of life. When this is the case, men never forego seeking a remedy; there are too many who possess the finer vision enabling them to see how the wrong has been done and how it can be undone. This is the American spirit, the love of liberty and justice that was so famously awake in 1776, when the American colonies hurled back their legal, but unjust, rulers; and, please God, whether on as broad or on a lesser scale, it will ever be so in this country!

Let us leave now this phase of the question, with its legal problems that Dr. Egan has mastered so well; let us leave its classification of practitioners, its limitation of privilege, its degradation of certificates—facts which he ignores equally well; and now, opening an entirely new chapter in the discussion, let me ask, What is the distinguishing mark between the eminent metropolitan practitioner and the hardly recognized cross-roads doctor? What is the hall-mark of the man, be he of city or country, who rises above the level of a mediocre prescription writer?—of the man who makes an impress on the practice of his day and the man who is forever engulfed in obscurity? Between these two sets, as I may remind you for the purpose of my argument, is a host of every degree—from him who barely gets above the lowest level to the authority who, with a touch of genius like Sims or McDowell, does roadbreaking work—"bahnbrechende," as the Germans express it. Few ever reach such a goal, but as few perhaps accept failure in advance, and every man has an implied equity in the game. Almost every graduate starts out confidently on this line, he hears it rotundly on commencement night, and not seldom with conviction that he is it. Accepting, then, the trite truism that every man can aim high, I again ask why the vast space between the automobiling swell of the great city and the mud-slinging pill-bags of the little country town? Why is the one man great, rich, influential; the other obscure, seldom affluent, too often of small attainment? And, after all, we need not go to the country to find the *oi polloi* of the profession; they exist as well on the side streets of the cities. But the distinction between these two great classes, whom I have endeavored briefly to sketch, is at once apparent. And I ask again, Why the vast difference? Many reasons will occur to you—most of them insurmountable and nearly all foreign to our discussion. But of them there is one reason vital to this inquiry—one reason that everywhere counts for success—its lack, failure—and that reason, gentlemen, is the art of specializing!

Let us go a step farther and boldly leave medicine for a moment. In the marvelous infinity of detail which characterizes life, the human mind would be hopelessly lost, like a little child alone in the heart of a great forest, unless within itself it had for guidance certain innate qualities called instincts. Like the child, too, in its endeavors to escape, it



has, we are told, traveled many times in a circle until, with gradual evolution, first the coarser, then the finer, instincts became developed. Now they are recognized as outgrowths of existence itself; and just as they are more or less deeply implanted in the individual, so do they distinguish that individual from another. When based on what is best for mankind, they are called good instincts; and when based on evil, bad instincts. The one class is encouraged to continuous growth; the others are fought from the cradle to the grave.

Now, perhaps, this little dissertation may seem a far cry from Interstate Medical Reciprocity, but the Degraded Certificate is close by. To hurriedly trace the connection, let me remind you that foremost among the benign instincts is that one of selection—a mental attribute that has ever made powerfully for progress, and without which the world would to-day turn backward. With set purpose I have thus touched at the tap root of a very large matter—a matter that has been determined for us by the scheme of creation itself, and which is now so firmly grounded that no laws, nor police powers, will ever change it one iota.

Everywhere is selection at work; it is the mainspring of action. Consciously or unconsciously, from lowest to highest detail, every one is selecting constantly. How many of the facts of a day are retained when that day is closed? A few—a very few—that have been selected. And in a year—or after a journey—how many? But why illustrate further? The truth is that the brain becomes bewildered by infinity, whether of space or of facts, and in very self-protection is ceaselessly, and often unconsciously, selecting. Out of such complexity comes the artist, who, with still finer selection, does what the camera can never do; or, perhaps, with keen appreciation he bends the instrument to record the one impression out of a thousand that will most vividly and truly reflect what his own trained mind has caught ahead of the mechanical device. Even the amateur selects, though he usually fails, while the artist succeeds. For, as the rule admits of no exception, that mankind are selecting constantly, so the selection may be done as the artist does it, well and consciously, and with a firm hand, or poorly and hesitantly and to no good end as the amateur does it.

Thus, as the artist emerges out of an abhorrence of incongruous detail, so, in turn, as circumstances develop him, comes the specialist, who is the artist specialized. To-day we could not do without this specialist, whether it be in the healing art or in potatoes. He is master in his field, and in our extremities is the man to whom we appeal. He leads in his sphere, others follow; he initiates, others copy; he often does *bahnbreckende* work through trackless woods, and sometimes gets almost out of sight before the mob awakes to come howling after; or, again, when, as in surgery, he invents a great operation, or in medicine he discovers an antitoxin, the world proclaims him genius and throws fame and adoration at his feet. This, gentlemen, is the highest type of worldly success—this is success without the tainted dollar—and, though but few ever get near the goal, the way always stands open for all. And if the greatest pleasure lies in the struggle, and not in the attainment, there may be

more to the game of trying than Horatio's philosophy could ever dream of.

Specialism is thus seen to be due to an instinct of the mind, divinely implanted. It has its justification in the love of doing things well; its roots are beyond cavil. It is one of the most precious privileges of life, and only its perversions are harmful.

But how to reach such a level—how is it done? Other factors permitting, two essentials are concentration—of every element that enters into the man's work; with continuous selection—endless exercise of the God-given instinct, for here real knowledge is imperative, impedimenta withering. "Knowledge is power!" cried Lytton long ago—a cry as true to-day as it ever was; and nowhere is such power better wielded than by the specialist. But, mark you, the specialist does what the examiner can never do; he distinguishes clearly what it is that gives power, what knowledge is potential, and what is the mere flotsam and jetsam of the schools, the padding of the book made to sell, the fads and complacencies of the hour. These things he sees only to toss overboard, while retaining the facts that his genius (if he has it), or his talent (if he is only an ordinary worker), or his industry (if he is of lowly station), may weld into some new form of power. All else is but dross and soon becomes intolerable.

Now, how does such a standard compare with the relatively narrow conventionalities of the ever righteous examiner?—of the man who sometimes translates into his lists rows of questions taken bodily from the current quiz compends?—or else of that other kind who retreats behind the policy of denying publicity to his lists? In a word, is it simple justice—is it for the good of the people at large, to use Philister's pet expression—to set such a one as arbiter of another's career in specialism?

It will not do to shut our eyes to a great wrong done before us and apparently with our approval; that is, it won't do for a man with a conscience. Nor will it do to say, "'Tis no concern of mine; I have no personal interest in the matter." Perhaps not, but he who consents, either openly or silently, to an injustice is an accessory and is as deep in it as the chief transgressor. The situation I have described is not merely possible; it actually exists, and you must ask yourselves, How does it fit in with the equities that should govern life?

At this point, let us suppose, the advocate of the *status quo* retorts, You can acquire what you want by doing as the late graduate as has done—by submitting to an examination; then, no matter whether you hail from Arcady or Heart's Desire or other realms of poesy, there will be no trouble about your standing, provided, of course, we don't skin you. Precisely. But here let me turn on the light of the attorney-general's opinion, for it illuminates both ways. I quote substantially, *that when the board enlarges, or interprets broadly, its powers in the interest of the people, it will probably be sustained by the supreme court.* Accordingly, it so happens that where accretion of power will result the board promptly enlarges; but in the case of our old practitioner, where no power could accrue, but would rather be curtailed, the board dismisses lightly the

harm it is doing the dear people by circumscribing the activities of such a practitioner. An instance of strabismus, it would seem, affecting our old acquaintance, police power. Viewed thus in the light of all these facts, I reply to the advocate of the *status quo* that his demand is unjust, narrow, cruel. I repeat, this requirement of an examination of the old practitioner, and particularly of one who for years has been specializing, is an exquisite piece of bureaucratic tyranny—by which I mean the arbitrary exercise of power in a cruel manner. It must be a board conception; it is too utterly lacking in equitably keeping the faith with any man who has long been following his best instincts; it is too utterly lacking in sympathy with those elements in the human mind that make for progress, for the love of doing well a few things, for all that comes of selection, and, therefore, of all that is most potent and valuable in life. It would coldly sacrifice all these things, or at least make them secondary, for the sake of holding a firm control, for the sake of power! That, ladies and gentlemen, is what I call bureaucratic tyranny; that, in fine, is board rule gone mad.

It may be objected here that this plea of specialism is overdone, that the specialist is the exception, and that regulations must fit the prevailing type. To this I reply that specialism is only apparently, not truly, the exception in the profession. As applied to the best class of men it is certainly the rule, and here comes in the peculiar irony of the present situation. Moreover, I continually observe ordinary men who are more or less unconsciously specializing. Even communities recognize the fact of special abilities, and occasionally they do it ahead of the practitioner himself. The process begins as soon as childhood's education is complete—when the man goes to the university and selects a course. This done in turn, he specializes still more sharply in selecting a profession. Then, from the day he graduates, he little by little begins to choose those things which he delights in doing, he grows more and more proficient in them, the community sees this special proficiency, and, deny it as he or boards may, he is in a degree a specialist. The rest follows as a matter of relativity. The particular poignancy of it all is that this specialist, having begun twenty or thirty years ago, before present enactments were dreamed of, has been caught in the meshes of his own devotion to what is artistic in medicine. The licentiate of to-day has only to fear some future development of bureaucratic control that can not at present be foreseen. May God be with him!

It is poor satisfaction to hear that allowance is graciously made by the board for each five years of practice. Such an argument at once acquires a *reductio ad absurdum*, since the allowance would be greatest when a man is in his dotage. But to take the plea more seriously—in truth, it looks more like an apology, or a second thought—no allowance can remove the unfair humiliation of our old practitioner beside young memory-athletes, who have had years of—mark it!—*special* training for just such an ordeal. The practitioner can meet it only by enormous sacrifices of time and toil—in plain words, by a process of cramming for which all his circumstances totally unfit him. In such a field, who can

fail to perceive the vast difference between the old man and the young man? The youngster has long been memorizing, and now, with the faculty at full tide, his gluttonous brain closets are still demanding facts, indiscriminately; while the other man, with closets agape under the pressure of all that goes to make up life, has become an adept in barring out even silver-plated junk. In fine, he is constantly differentiating between shelf knowledge and the knowledge he must carry like petty cash, ready for instant use. Does the average published list so differentiate? The question itself is a mockery! And the two types of men—how vast the space between them! The graduate is like an athlete in his first flush; the old practitioner like him who begins to rely on his cane. As well ask the latter to do over again the feats of his boyhood! He may gamely try, he may even succeed, but he is far more apt to come out of the contest limping, his self-respect sorely wounded, a gastrocnemius strained, perhaps a chorda tendinæ ruptured.

In any event, what does such an examination reveal? Solely the acquisition by memory alone of a vast amount of bare facts; it gives absolutely no proof of potentiality in the man. As such it is useless save as a quiz of the recent graduate, to show how he has employed his time. I submit it can honestly have no force at all beside a long record of successful practice.

Let us now broaden this question of humiliation involved in the old practitioner's examination, and suppose that with all allowance he has failed to pass. On analysis very many of the questions require merely the strain of memory already discussed, and, for a medical specialist, are on a par with those about Scarpa's triangle, the various spaces and regions, origin of the cranial nerves, chemistry of the various alcohols, etc. A failure he has made, indeed, and yet a technical failure; nevertheless, according to the methods of examination outlined by Dr. Egan at our county meeting last year, the failure is irremediable. Dr. Egan seemed anxious to impress us with their absolute impartiality. This I do not question, but equally unavoidable is the conclusion of a cold indifference to the dilemma of the old practitioner, who, in facing such a test, must feel before him "the spear that knows no brother."

Impartiality without opportunity for discretion, exact legal justice without any elasticity for unusual circumstances—an extraordinary solicitude for the newly forced order of things, a stony rigidity for the old—such are the characteristics of these examinations by the claims of the board itself. Now let me ask how examiners, following such inflexible methods, with indifference to specialism and to all that specialism implies, can be expected to measure the worthiness of the old practitioner, or, in case of a technical failure, to realize its consequences on the man's future life, on his family, on his clientele—on all that makes up his circle?

In further support of these contentions, let me make, before I close, two quotations—one from a recent publication, ephemeral if you please, but powerful in molding American opinion. The remarks, as you will



see, have been elicited by the contradictions of expert testimony. I quote as follows:

"He—the alienist—may be a man of undoubted proficiency in his field, but any number of causes may contribute to make him in the witness chair a force for confusion, or a joke. It is by no means an anomaly that an expert in the higher theory of his profession, or one whose skill is derived from years of practice, should be found ignorant of the elementary principles of his art, as expounded in the text-books. Famous mathematicians have been known to succumb to the mysteries of dividing one common fraction by another, and it is on record that a professor of English literature in one of our universities could not, on the witness stand, remember the story of 'Romeo and Juliet,' nor name the two rival houses in the play, nor identify a single character. Confront your expert with a prosecuting officer who has been coached by other experts, and has made his assistants read up the very latest German pamphlet on the subject, and cast on him the full flood of the rules of evidence . . . and he is frequently an object of pity of even the prisoner at the bar."

With a few unessential changes of terms, how applicable is the foregoing to the experience that may befall our old practitioner should he go before the board. The parallel is apt enough for a blind man.

Just one more quotation—one that you may have seen, but it is too authoritative to leave out. Says Herbert Spencer:

"There is one general criticism which I feel inclined to make upon examination papers at large. They are drawn up with the exclusive view of testing acquisition rather than power. I hold that the more important thing to be ascertained by an examination is not the quantity of knowledge which a man has taken in and is able to pour out again, but the ability he shows to use the knowledge he has acquired; and I think examinations of all kinds are habitually faulty, inasmuch as they use the first test rather than the last by which to judge of superiority."

Here, then, is an opinion from a wise man. If examinations in general, and particularly of the undergraduate, are thus faulty, how much more so do they become in the case of our old practitioner—a man who, I repeat, has for years been developing, not the faculty for acquisition, but for power!

Like many another writer on medical subjects, I have only a word to say under the head of treatment. The whole problem could probably be solved in short order by the board, acting under its general powers; but, as there is faint chance of such a change of heart, the recourse would seem to be legislative action. In such a matter the will of this Society would be of the first importance.

The subject, I feel, is still far from being exhausted, but my time is; hence, any remaining material must be kept in reserve for another possible occasion. I beg to thank you, Mr. President and ladies and gentlemen, for your attention.

## HYDATID DISEASE; REPORT OF A CASE.\*

L. B. ASHTON, M.D., C.M.

Associate Surgeon St. Mary's Hospital.

QUINCY, ILL.

The *Taenia Echinococcus* which produces this disease is the smallest of the cestoda or tape worms, its strobilus or mature form being only from one-sixth to one-fourth inch in length and composed of but three or four segments, while the more common varieties, the *T. Solium* of the hog and the *T. Saginata* of the cow, attain a length of from ten to forty feet with fifty to one thousand segments. This organism is extremely rare on this continent, less than one hundred cases having been reported. Of these Dr. A. H. Ferguson of Chicago collected over 50 per cent. during his service in the Winnipeg General Hospital, which were for the most part his own cases, coming from the Icelandic colonies settled in the Canadian Northwest.

Its geographical distribution is confined pretty closely to those countries where the social conditions of the people are very primitive and the relations of the natives with their domestic animals, particularly the dog, more intimate than in those of a higher order. Iceland leads in frequency, where hydatid disease is said to contribute to about one-seventh of the death rate. Australia is another hotbed among her bushmen and sheep-herders. It also prevails in the southeastern provinces of Germany and in the adjacent ones of Austria-Hungary and the Balkan States which lie to the east of the Adriatic Sea. Because of the ever-increasing immigration of the lower classes from these parts to America this disease will probably be more often met with than it has in the past, so that this possibility should always be borne in mind in obscure cases among these foreigners. Sporadic cases, of course, are always met with in other countries as a result of commercial and industrial intercourse.

The life history of this parasite is most unique and interesting. In its natural state it is confined to the intestinal tract of the dog, sheep, wolf, and sometimes the cow and horse, where it is comparatively harmless. Here it attains its full growth, having a head with hooklets and three segments, the last one of which, being about one-half the length of the whole worm, contains the uterus, where from four to five thousand eggs are developed. These being passed out as excreta may find their way by water, food or other media to the alimentary tract of man. In the human intestine the ova soon migrates, by means of its five or six deciduous spines, through the bowel wall, where it is caught up by the blood stream and carried to some more or less remote part and lodged there in the tissues. The embryo now begins to take on an altogether atypical form and mode of life, which is much more complex than its regular growth while within its natural host. Instead of simply reproducing another worm, the head, or scolex, only comes to maturity, while from its neck an enveloping membrane is produced which forms the wall peculiar to the hydatid cyst.

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\* Presented at the May meeting of the Adams County Medical Society.

Its inner layer now begins secreting a thin watery fluid which further distends the wall until in time, by pressure on neighboring structures, adventitious connective tissue is added as a reinforcement and blended with the true cyst wall. The true wall is laminated, its outer wall being tough and elastic, while the inner one, the germinating layer, is soft and granular. Brood capsules containing heads soon begin to sprout on the lining membrane and by the same process of cyst development these buds break free, becoming the daughter cysts usually found within the original, although they occasionally grow exogenous, the alveolar form. So the multiplication may continue until the original cyst is crowded, unless its activity is interrupted in some manner. The heads have much the appearance of that of the *T. Solium*, but are many times smaller, measuring about 1/100 of an inch in diameter and consist of a neck and an expanded part ending in a blunt nose which is surmounted by a rostellum, or circle of hooks, thirty to forty in number. Back of these on the broader portion are placed the four sucking disks. The walls of the daughter cysts are thin and transparent and highly reflective, mirroring beautifully the surrounding objects. The secretion found within all these generations of cysts is a limpid fluid having a sp. gr. of 1006 to 1008, it is non-albuminous and saline, containing about one-half per cent. sodium chlorid.

In those cases where the resulting tumor of the hydatid cyst becomes accessible this liquid may often be obtained for diagnostic purposes by aspiration, the hooks being very hard and horny will persist even in old degenerated cavities or in the presence of pus. The so-called "hydatid thrill," said to be pathognomonic of this form of cyst, may often be obtained on percussion, but is not constant. It consists of a continued tremulous sensation under the examining finger. Various theories have been advanced to explain the cause of this phenomena, one of which is the continuous oscillations and impact of its contained daughter cysts, but as it may occur where these are not present, it is probably dependent upon a certain tension of the elastic layers in its wall.

As might be expected, it is found that over 50 per cent. of these cases are located in the liver, by its direct connection with the intestines through the portal circulation. The more remote distribution is through the systemic system, so we find the lungs next in order; should the ova, however, pass the larger capillaries of the lung they may then be swept on to lodge in the spleen, kidney, brain, bone, the pelvic organs, mammæ, muscles, and even the eye.

This parasite, therefore, is probably the most dangerous of all the entozoa in man, for, as we have seen by its tendency to grow, it may produce serious changes in surrounding organs or tissues as the result of pressure, or it may become infected and converted into an abscess cavity with fatal results. If its presence is not recognized it may sometimes terminate by absorption with the calcification of its contents, it may rupture, or may become sterile and remain stationary in its growth. Even in the most benign forms they are usually accompanied by a gen-

eral myasthenia and fever, from absorption of toxins from its fluid contents, producing what is known as "Hydatid Disease," in contradistinction to the ordinary retention cysts. The treatment is surgical.

CASE.—Male, age about 30, single, Slav, coming from the foreign colony working in the cement works at Hannibal, Mo., presented himself at the medical department of St. Mary's Hospital, April, 1906, and was referred to the surgical service of Dr. Henry Hart. Left Slavonia about two years previous, where he had worked all his life as a farm laborer. Had been closely associated with dogs in his old home, but not in the United States. The common source of drinking water in his country was from springs, quite an ideal condition for acquiring the disease where it was prevalent. Had no knowledge of similar cases in his section.

He gave a history of gastric symptoms, extending over one year, nausea, anorexia, a sense of fullness on eating, weakness, and, more recently, pain in the epigastric triangle on pressure. On examination a palpable tumor could be felt about four inches in diameter situated in this area. Percussion elicited fluctuation of a dense walled cyst, possibly in the pancreas; because of his nationality hydatid cyst was also thought of, although no thrill could be detected. Aspiration was not done, as an operation was indicated.

The cyst was evacuated by a medium incision and found to contain fluid, with fifty or more secondary cysts floating free, ranging in sizes from that of a pea to that of a hen's egg. The adhesions to the abdominal wall were so dense as to make it impossible to determine the exact origin of this tumor, but it was evidently neither hepatic nor pancreatic. The ova had probably migrated into the posterior abdominal structures direct from some adjacent portion of the intestines.

On examining the fluid from one of the daughter cysts its chemical composition was found to correspond to that given above. Another portion was centrifugalized and faintly stained with methylene blue, dried and mounted, when the characteristic scolices and hooklets were readily recognized. The lining of the sac was curetted and swabbed with phenol and alcohol; in about three or four weeks it had shrunk and closed and the patient was discharged with a complete relief of his former symptoms.

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### OPSONIC THERAPY IN SKIN DISEASES.\*

R. W. McCLINTOCK, A.B., M.D.

Instructor in Dermatology in the College of Physicians and Surgeons.

CHICAGO.

The researches of Denys and Leclef, of Wright and Douglas, and in America especially of Hektoen, with their co-workers in this field, have shown us of late years that the defense of the organism against infection by phagocytosis is not simply a matter of ingestion of the invading micro-organisms as conceived by Metchnikoff, but that a second factor of equal

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\* Read before the Chicago Medical Society, April 16, 1907.



importance enters into the process, namely, an action of some undetermined nature upon the micro-organisms by some element of the blood serum which affects them in such a way as to render their ingestion and destruction by the phagocytic cells a possibility. This serum element has been named by Wright "opsonin." It has further been demonstrated that there is a specific opsonin for each of the bacteria hitherto investigated; that the amount of opsonin increases as result of the reaction against introduction of the toxins contained in or produced by the bacteria, and that the serum of individuals who show a lack of resistance against a given infection is deficient in the specific opsonin.

Theoretically, then, it would seem that we have presented to us a simple therapeutic proposition. Given an individual suffering from a localized chronic infection, the natural method of resistance to which is by phagocytosis, we should be able by introducing the toxins of the infecting bacteria into the system to secure a reaction resulting in a formation of increased opsonin, which being carried in the circulation to the point of infection there enables the phagocytic cells to effectually carry out the natural method of defense.

It is evident *a priori* that this method is applicable only to infections characterized by a positive chemotaxis, and particularly to those which are localized, and to cases in which contributory factors in the production of lessened resistance are discoverable or have been remedied without satisfactory effect upon the process. The chronic diseases of the skin associated with pus infection would thus seem to afford one evident field of usefulness for this method, and, indeed, it was in this field that the first of Wright's remarkable work was done. That this treatment is of value in such cases has been thoroughly demonstrated, and it is my desire in this paper to consider its practical feasibility in the routine of ordinary or at least of dermatological practice rather than to substantiate facts already well recognized in respect of its value. We have here a method of treatment which is of practical utility, valuable and successful in some cases which are exceedingly obstinate and intractable to other methods, and which, though requiring a certain amount of special training, is not beyond the reach of the practicing physician who has a moderately good acquaintance with modern laboratory and bacteriological technique.

I shall endeavor to give a concise presentation of the technique which I employ and a somewhat detailed description of the treatment and course of my first cases, with the hope that my experience may be suggestive and helpful to others. My first use of this method was shortly after the appearance of Wright's second paper on the subject in 1904, and I used then and have since adhered rather closely to the technique which he described at that time. The apparatus and materials I find necessary in working with the pus infections may be summarized as follows: tubes and plates for cultures, with bouillon and glycerin agar for media, a small incubator, a Thoma-Zeiss hemocytometer, a microscope, an electric centrifuge, some glass tubing with which to make the pipettes, and small tubes, slides, stains, etc.

My first step is to make a plate culture from the pus of the lesions and to determine the micro-organism responsible for the infection, which in most of my cases has been some species of *Staphylococcus aureus* or *albus*. This culture is then transferred to bouillon or to glycerin agar and incubated three weeks for the white staphylococcus and ten days for the yellow. The growth on glycerin agar is then emulsified with 1 per cent. lysol, or lysol added to the bouillon culture to make 1 per cent. These preparations are then kept for an hour at 60 degrees C. and then tested for living organisms by inoculation on agar tubes. In no case have I found any growth to occur. These suspensions of killed bacteria are then ready for hypodermic injection, one-eighth to one-half of such cultures being used at a time.

Determinations of the opsonic index I make as a routine, one at the time the patient presents himself, with a view to determining whether the vaccine injections are indicated; one some three weeks later, just before giving the first injection, as a control, and one before each of the next two injections, to be sure that the "negative phase" is past. I have omitted further determinations of the opsonic index except in occasional instances, where by reason of the clinical course it seemed advisable or interesting to determine it, and I have not found that the omission of the daily determination of the index has had any bad effect upon the therapeutic results of the treatment.

The technique I use is as follows: A twenty-four-hour agar culture is washed off with normal salt solution and centrifugalized for five minutes and the supernatant fluid pipetted off and used as the bacterial suspension. About thirty drops of the patient's blood, procured by a puncture which must be slightly deeper than that made for ordinary blood examination, is drawn into a bulb in a capillary tube, the ends sealed, and the blood allowed to clot. At the same time a like amount of blood from my own finger is similarly placed in another bulb to provide the normal control serum.

The leucocytes are obtained by drawing about thirty drops of blood into a 1 per cent. solution of sodium citrate in normal salt solution, thus preventing clotting. This is then centrifugalized, the supernatant fluid pipetted off, and the corpuscles twice washed with normal salt solution and centrifugalized. The last washing is pipetted off and the upper part of the sediment, which contains the majority of the leucocytes, is used. Two more glass tubes are made by drawing down ordinary glass tubing, and suitable marks are made with a file for purposes of measurement. Into one of these are drawn equal quantities of the patient's serum, washed corpuscles and bacterial suspension. The ends of the capillary tubes are sealed and the tubes placed in an incubator for fifteen minutes. Slides are then prepared and fixed for each, as for blood examinations, and stained with methylene blue, and the number of bacteria in fifty leucocytes is counted in each. The fraction obtained by using the number in the preparation with normal serum as the denominator is the opsonic index. The whole proceeding takes from two and a half to three hours. There are some technical difficulties which can be mastered after a com-

paratively small amount of personal experience, such as obtaining a bacterial suspension which is free from clumps, getting an even spread of the material on the slide, etc. The difficulties are not so great as to prove overwhelming to a physician or his assistant possessing a good laboratory training. There is a possibility of error in this method amounting, as nearly as I can estimate, to 10 in 100.

The cases, the reports of which follow, are the first cases which I treated by this method, dating from 1905, and are described, with the exception of the last, in the order of their occurrence in my records, and are, therefore, I think, fairly illustrative of the results obtainable.

CASE 1.—A young man, 21 years old, who had one of the worst indurated aenes I have ever seen, affecting the face, back of the neck, and shoulders. The majority of the lesions were large and deep-seated, and of extremely indolent type, showing very slight tendency to spontaneous resolution, and forming pus-containing cavities in the subcutaneous tissue, some of which became the size of a 25 cent piece. He had had trouble since the age of fifteen years, getting progressively worse, and was very sensitive about the condition. He was an excessive smoker. Was not constipated. Hemoglobin 74 per cent., R. B. C. 4,200,000, W. B. C. 6,400.

He received for a period of nine months combined local and *x*-ray treatment, with the production of a mild *x*-ray erythema upon three occasions, and constitutional tonic treatment with interdiction of tobacco. There was some improvement in the condition under this régime, the more superficial lesions becoming less and less frequent, and comedones to a large extent disappearing, but the existence and course of the larger and more deep-seated lesions was modified in only a very slight degree, up to the time that the opsonogenetic treatment was instituted.

Cultures from the pustules showed constantly the white staphylococcus. Determination of the opsonic index was made as above outlined and it was found to be for this staphylococcus 0.44. The first injection given was one-fourth of a three weeks bouillon culture, treated as above described, and was given hypodermically in the forearm. No reaction constitutional or local was apparent as result of this first injection. Three days later the opsonic index was 0.51. The next day another similar injection was given, which also produced no evident reaction. The third day after this the index was 0.55. The next day again a third injection was given of twice the amount of those preceding. No constitutional symptoms followed this, but there appeared a redness and slight swelling with feeling of soreness at the point of injection, which lasted two days.

Six days after this injection the index was 0.94. On the next day another injection similar to the last was given, and repeated after another week, each being followed by practically the same reaction. The sixth and last injection, given after the lapse of ten days, was followed by a rise of temperature to 102 degrees, with headache and joint pains, and locally by the formation at the point of injection of an abscess the size of a hickory nut, and containing a watery sero-pus, which gave no bacterial growth when inoculated upon glycerin agar. An improvement was noticeable after the first injection, the pustules becoming smaller, and undergoing apparently a natural and rapid involution. From this time on only two new deep pustules developed, and the condition cleared up so rapidly that at the time of the last injection there were present only three or four superficial epidermal pustules. The improvement has been maintained up to the present time without recurrence.

CASE 2.—This was a pustular acne of moderate severity in a young man of 18 years, who was otherwise entirely healthy, no constitutional factors being discoverable. The condition had lasted for three years and became progressively worse. He had had treatment at the hands of three physicians, with at the best only temporary improvement. Blood examination showed: Hemoglobin 85 per



cent., R. B. C. 5,100,000, W. B. C. 8,300. Inoculations from the pustules showed pure cultures of *staphylococcus pyogenes albus*. Opsonic index 0.74.

The first injection consisted of  $\frac{1}{4}$  of the 3 weeks' growth from a glycerin agar tube, the index at the end of a week being 0.75, when a second injection of double the amount of the first was given. This was followed by local reddening and pain, and some malaise, with 0.5 degree rise of temperature, the opsonic index at the end of the week being 0.99. He then received once a week for five weeks a similar injection, each followed by practically the same slight reaction. Improvement in the condition became manifest at the end of three weeks, the lesions becoming smaller and less indurated. The natural involution of the lesions was much hastened, and the formation of new ones was gradually lessened, until at the end of two months from the time of beginning treatment there were only four lesions to be seen. These soon disappeared, and for ten months, as he said, "there was not a spot" on his face. At that time there was a slight recurrence, the opsonic index being 0.8; this readily disappeared after four injections. In the five months which have since elapsed he has been entirely well.

CASE 3.—This case must be classed as a complete failure. The patient was a young man of 18, an elevator conductor. He had a pustular acne of the face of moderate severity, with many comedones and a very oily skin, the pustules being of the more superficial type. He was subject to digestive disturbances and somewhat constipated. Blood examination: Hemoglobin 77, R. B. C. 4,220,000, W. B. C. 6,300. He was placed on an appropriate diet with fluid extract of cascara. Cultures from the pustules showed *staphylococcus albus*, for which the opsonic index was 0.31.

The first injection given was  $\frac{1}{4}$  the emulsion from a three weeks' glycerin agar culture, and was followed by a marked local reaction, though without abscess formation, and in about ten hours by a severe constitutional reaction. He had a chill followed by fever with temperature reaching 103 degrees, associated with muscle and joint pains, and lasting about sixty hours. During the next week the condition of his face became decidedly aggravated, the lesions becoming more numerous, larger, more deep-seated, and more indurated. After six days the opsonic index was 0.28. During the next three weeks he improved slightly, and the index rose to 0.39. He then received one-fourth the original dose. This was followed by a slight local and no constitutional reaction, and was repeated a week later with like results. There was no improvement in the patient's condition, however, and he discontinued treatment.

CASE 4.—This was a very severe pustular acne in a young woman of 23, confined to the back, there being only an occasional lesion upon the face and chest. The posterior surface of the body from the hair line down to the level of the first lumbar was covered with indurated pustules and deep-pitted scars. The condition was variable in severity, improved at times, and being much worse at the monthly periods, and had lasted for eight years. She was a vigorous healthy girl, given to outdoor exercise, and with unquestionable eliminative habits. Blood examination, hemoglobin, 81, W. B. C. 7,400, R. B. C. 4,700,000. Cultures showed the white *staphylococcus albus* was 0.78.

She received first an injection of  $\frac{1}{8}$  of a three weeks' bouillon, culture of the white *staphylococcus* from the pustules, which caused only a slight local reaction. At the end of a week the index was 0.89. Double the first dose was then given, and this was repeated seven times at intervals of a week to ten days. Each of these injections was followed by local redness, swelling, and tenderness, subsiding within 48 hours, and by some malaise and slight elevation of temperature, not above 101. No improvement was perceptible for the first four weeks; indeed, she became evidently worse at the end of the fourth week, coincident with menstruation; the opsonic index did not go down at this time, however, being 1.23. At the end of the fifth and during the sixth week, improvement was evident, and continued gradually until at the end of three months she was practically well, and has remained so. She has not been entirely free from lesions, but there has not been over three at a time, and the contrast with her condition before treatment is very satisfactory.



CASE 5.—Coccogenic sycosis involving the whole of the bearded area of the face in a man of 36, of four months duration. Over the area of the moustache and a patch on the right cheek and right side of the chin the lesions were confluent and crusted, with a fungating tendency. Elsewhere the lesions while thick set were discrete. Suppuration was pronounced. He had had insufficient local treatment, which had been without result. He received mild x-ray exposures for a period of three weeks, to the point of production of a slight erythema, and locally an antiseptic and slightly astringent lotion. Under these measures improvement took place to the point where the patient thought he did not require further medical attention, and absented herself for about five weeks, when he returned with the condition worse than ever. Cultures showed the infecting agent to be *staphylococcus pyogenes aureus*, for which his opsonic index was 0.52.

A first injection consisting of  $\frac{1}{8}$  of a ten days' culture in peptone bouillon produced a very slight local reaction, and at the end of a week the index was 0.59. A second injection was then given, of  $\frac{1}{4}$  of a ten days' culture, producing a rather marked local reaction, the redness and tenderness lasting two to three days, and there was some constitutional reaction, which manifested itself in a feeling of malaise and elevation of temperature one degree. The index at the end of the second week was 1.38. Two more similar injections were given at intervals of a week, with similar reactions, the temperature elevation going as high as two degrees. Improvement in the condition began toward the close of the second week. In the middle of the third week no more suppuration was visible, and the fungating patches of confluent lesions became flat and rapidly underwent resolution. Five weeks after beginning treatment the face was practically normal. There has been no recurrence in seven months.

CASE 6.—Multiple boils. Man 55 years old. Three years ago he was in the South where he contracted malaria, from which he suffered for about a year, and since then has not been so strong as before. Up to two years ago he had had boils occasionally, but at about that time he suffered from an outbreak of boils, several appearing at the same time on the back of the neck, in the axillæ, and on the buttocks and thighs. Since then he has not been free for a month at a time and has had as many as eight at once, over every part of the body. He was slightly constipated but otherwise healthy. The urine was normal. Blood examination, R. B. C. 4,120,000, W. B. C. 13,400, hemoglobin 71 per cent. Cultures from boils showed *staphylococcus aureus*, to which the opsonic index was 0.31. He was put on a ferruginous tonic, with strychnin and aloin, and was given an injection consisting of  $\frac{1}{8}$  of the emulsion from a ten days' glycerin agar culture. This produced no reaction and at the end of the week the index was 0.30. He was then given  $\frac{1}{4}$  of a similar culture weekly for seven weeks. Each of these injections was followed by a moderate local and slight constitutional reaction. At the time this treatment was begun he had two boils in the declining stage and three which were just developing. Of the three, two were aborted, while one progressed to the stage of free suppuration and discharge, remaining, however, below the average in size. After the third injection there developed two lesions which seemed to be about to develop into boils, but they did not progress beyond the stage of redness and swelling. During the rest of the treatment and up to a month later, when I lost sight of him, he was entirely free.

CASE 7.—This was a case of a peculiar weeping fungating dermatitis, affecting an area the size of the palm on the inner aspect of the thigh in a man of 31. It had begun about three months before, apparently as a small patch of eczema, which had evidently become infected, and assumed the aspect of a granulomatous dermatitis. At the time he came to me the lesion consisted of a fungating mass of granulation tissue, elevated about a quarter of an inch, yellowish red in color, and with an abundant foul-smelling sero-purulent discharge. It had had local antiseptic treatment, but had been very rebellious and had constantly extended peripherally. Cultures showed *staphylococcus aureus* to be the probable etiologic

ical factor. His opsonic index for this germ was at the time of examination 0.72.

An injection of  $\frac{1}{8}$  of a ten days' glycerin agar culture produced no reaction. Six days later the opsonic index was 0.77. The next dose one week after the first was  $\frac{1}{4}$  of a similar culture, and this produced a slight local with no constitutional reaction, the index six days later being 0.89. Three more injections of the same dose as the last were given at intervals of a week, without producing at any time any constitutional reaction.

Improvement was manifest in the last part of the second week, the discharge decreasing rapidly and the vegetating surface becoming flatter. At the end of the third week the secretion was scanty and purely serous and the area was level with the skin surface and beginning to heal. In a little over five weeks he was entirely well, the opsonic index being then 1.38. No other treatment was given aside from boric acid wet dressings.

CASE 8.—Lupus vulgaris of the face, in a woman of 27. The disease occupied a space about the size of a 25 cent piece on the right cheek, and had been developing without any treatment for four years, according to the history I obtained. The lesion consisted of the typical so-called "apple-jelly" tubercles, and a small piece of the tissue which was excised showed the usual pathological anatomy of lupus.

She was given hypodermic injection of 1/5000 mg. of tuberculin TR, which produced no apparent reaction. A week later she received 1/4000, and after the lapse of another week 1/3000, neither of which produced anything more than a temporary local reaction. During this time there was, I think, a slight improvement in the condition of the face. The next injection given was 1/2500 mg., and this was repeated a week later. Each of these was followed by a redness at the point of inoculation, without constitutional symptoms, and after the last one there occurred in about twelve hours a reaction in the tissue of the diseased area, which became slightly swollen, hot, darker red in color, and slightly painful, and in two days broke down near one edge forming a small ulceration. Another injection of 1/2500 mg. given after the expiration of a week was followed by further extension of the ulceration, a certain amount of the diseased tissue sloughing out during the week which followed. As the progress from this treatment was not very satisfactory, she was then given x-ray exposures, and the lesion progressed to complete healing, leaving, however, a very distressing scar. I think more rapid and much better ultimate results might have been secured in this case by the use of x-rays alone.

The above cases have been taken just as they come in my records, but I wish to include as the last case in this report one which is to me the most interesting in the series and which is, I believe, unique in the history of this method.

CASE 9.—Blastomycosis of the back of the hand in an Italian laborer aged 33. The disease had existed for over a year, and when he came to me, with the scar tissue resulting from it, involved almost the whole of the back of the hand, extending down onto the first phalanges of the second and third digits. There were elevated slightly weeping patches of verrucous vegetations, interspersed with minute abscesses, and areas of dense and tightly drawn scar tissue.

Oidium blastomyces was obtained in cultures from the peripheral pustules. I was unable to obtain satisfactory results from an attempt to determine the opsonic index, because of the difficulty in obtaining a good bacterial emulsion of the fungus. A vaccine was prepared by grinding the three weeks' cultures from a glucose agar tube with glycerin, to which was added salt solution with 1 per cent. lysol.

The first injection was  $\frac{1}{4}$  of such a culture, which produced only a slight reddening at the point of injection. A week later  $\frac{1}{2}$  of a similar preparation was given, and at the end of another week the whole of a three weeks culture. This dose was followed by a distinct local reaction at the point of injection, with some malaise without elevation of temperature, and by an increase in the

inflammatory condition of the lesion, redness and secretion being much more marked for about thirty-six hours, when they began to decrease, and in three days the condition was perceptibly improved. Three more doses similar to the last were given, each followed by a like reaction. Two weeks after the last injection the hand was well. This was about three months ago, and so far as I know there has been no recurrence. No other treatment of any kind was given in this case.

The points in the use of this method in regard to which special care and caution are necessary are as follows: First, the "negative phase." The introduction of the vaccine is to be looked upon as a stimulation producing a reaction, one result of which is increased opsonin formation. This does not, however, occur immediately, but is preceded by a period of depression, in which the opsonins are decreased. This period has been named by Wright the negative phase, and is of variable duration, from a few hours to several days, dependent upon the amount and virulence of the vaccine and, to a lesser degree, upon undetermined factors of idiosyncrasy. This negative phase is frequently characterized by constitutional symptoms, such as malaise and elevation of temperature, and by aggravation of the local symptoms. Repetition of the vaccine injection during this period must, therefore, be guarded against particularly, either by determining the opsonic index just before an injection and finding it not lower than at the time the last injection was given, or by waiting before giving a second injection for the passing of such a period of time as experience with the case and individual in question has shown to be more than sufficient, in view of the dose given, for the expiration of the negative phase. It must be a cardinal rule never to give a vaccine injection during the existence of any constitutional symptoms or any aggravation of local symptoms attributable to previous injections. In my experience with the pus organisms, and with the doses I have used, I have not found the period of the negative phase to exceed three days, with one exception, and in pursuing my usual custom of repeating injections after the lapse of about a week, I have never had occasion to believe that I have encroached upon this period.

Second, too large dosage. In deciding upon the question of how much vaccine is to be given as a dose, we have to avoid on the one hand an amount so small as to be entirely ineffective, and on the other hand so large as to exaggerate the negative phase to the point of mischief. In dealing with factors so uncertain as those with which we have to do in this method of treatment, where we have no satisfactory way of estimating the virulence of our vaccine or the reactive idiosyncrasy of our patient, a standardized dose is impracticable, and the only sure criterion is experience with the results of injection of the particular vaccine in the particular patient under consideration. We have then a second cardinal rule for this treatment—make the first dose so small as to avoid the possibility of harm even in the presence of extreme idiosyncrasy, and in deciding upon subsequent doses be governed by the course of the opsonic index and the clinical features of the case. Error in the matter of dosage must be on the side of safety. In my experience I have found, as described in one case, that one-fourth of a three weeks' glycerin agar cul-



ture of staphylococcus albus was too large an initial dose, and I have since used for the first dose one-eighth such a culture and have not had any other untoward results.

The indications for the use of opsonic therapy may at present be summarized as follows: (a) A localized subacute or chronic infection in which accurate bacteriological diagnosis is possible and which is characterized by a positive chemotaxis; (b) non-existence or previous or simultaneous removal of other factors tending to produce insufficient resistance; (c) a lowered opsonic index for the infecting micro-organism. When these three indications are satisfied we can, according to my experience, most confidently expect that our opsonic therapeutics will strike the right spot and cure or greatly improve the condition which confronts us.

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### OPSONINS—OPSONIC INDEX AND VACCINE THERAPY.\*

JOHN C. HOLLISTER, M.D.

Adjunct Surgeon, St. Luke's Hospital.

CHICAGO.

I shall not try to cover all the steps in the technic of estimating the opsonic index and describe the methods of making the different vaccines for use in the therapy, because these have been done in a former article and because it is impossible to cover so much detail in so short a time. Therefore, it seems best to depart somewhat from the outline published in the program under the heading of my paper. With your permission then I will confine the scope of this paper to a discussion of the following important subdivisions under the general subject of "Vaccine Therapy of Surgical Infections."

First.—A simple description of what is meant by Opsonins, Opsonic Index and Vaccine Therapy.

Second.—An outline of the various affections to which such therapy seems to be of special value.

The theoretical conceptions are based upon ideas obtained from study at Wright's laboratory in London and from perusal of the literature; the practical conclusions are based upon not only the witnessed results of Wright's work, but upon work done in conjunction with Dr. L. L. McArthur and others of Chicago during the last eight months, covering a critical prolonged study of more than seventy-five different cases which involved a total of more than 2,000 blood examinations and the administering of more than 400 injections and more than 3,000 inoculations.

The whole aim of our investigations has been to find out of what actual value opsonins, the opsonic index and vaccine therapy are as aids to the usual methods of dealing with so-called surgical infections.

Wright has found that there are normally in the blood serum certain chemical substances which he calls "opsonins," as they have the power of so neutralizing or acting upon bacteria as to render these bacteria more

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\* Read before the Annual Session of the Illinois State Medical Society, May 21-23, 1907.



subject to phagocytosis, and it is by phagocytosis alone, so far as we know, that the blood has any definite resisting power to such infections as tuberculosis, staphylococcus and streptococcus infections and invasions of the colon bacillus or gonococcus. He has also found that there is a marked attempt on the part of tissue cells (endothelial cells or fixed connective tissue cells or possibly leukocytes themselves) to supply more opsonins to the serum when the area is disturbed by the invading pathogenic organism. He has found that there are different kinds of opsonins elaborated according to the kind of bacteria, and that the opsonins which may "neutralize" one kind of germ will not necessarily affect another. Again, he has found that in the serum of an individual suffering from some one of the common infections these chemical bodies called "opsonins" are usually small in number (or strength) as compared with a healthy individual, and, further, that if in this same patient these opsonins are increased in number there is much gained in the resisting powers of this patient to this kind of infection.

Two things happen, then, in this area of living tissue as soon as the germ appears. One is the number of leukocytes (phagocytes) increases by chemotaxis. This we all have known for some time. The other is that the opsonins in the serum are increased in number. If the co-action of these two factors is sufficient the invading organism is successfully resisted and the patient is cured. If, on the other hand, the pathogenic germ multiplies so fast and by its life exerts its pathogenic action so vigorously upon its environment that all the available opsonins are used up phagocytosis lessens and the patient gets worse. (Illustrated.)

Consideration of the above brings us to the following conclusions:

1. To aid our patient in his struggle against such infections as have been mentioned we must strengthen his phagocytic power.

2. If this phagocytic power depends upon white blood cells and opsonins we must have a method of determining what is the condition of such factors, and, if they are insufficient we must be able to cause an increase in their number. Increasing the number of leukocytes we can accomplish, but we know it holds only a subordinate value in increasing phagocytosis. Wright has not only perfected a method of determining the strength of the opsonic power, but also of increasing it if low; the first, by what is known as the opsonic index, the latter by vaccine therapy, and by their use we can not only estimate the patient's phagocytic resisting power to individual infections, but we can help him to get well by raising that power.

#### THE OPSONIC INDEX.

By "opsonic index" we merely mean the strength in opsonins of any blood serum as compared with a normal serum. For convenience we always consider the normal serum as having an opsonic index of 1, and we find the patient's serum to be the same, or below or above 1. We measure the opsonic strength of a given serum by counting how many bacteria a definite number of healthy phagocytic cells will take up when these bacteria have been "sensitized" or "neutralized" by the opsonins of the serum.

If we then carry out exactly the same procedure with an equal amount of the same bacteria, but in this test letting these bacteria be acted upon by the opsonins in a serum we know to be normal, then we have a standard with which to compare the opsonic strength of the original given serum.

Let me explain by a second simple diagram which will illustrate exactly what we do in the laboratory in obtaining opsonin indices.

Let 1 represent a test tube containing a lot of healthy leucocytes. (For more exact detail I refer you to our former paper.) Let 2 be a tube of the same bacteria suspended in salt solution. Let 3 represent some of the patient's serum. We take a volume from 1 and mix these leucocytes with an equal volume of bacteria from 2, which we sensitize by the opsonins of the patient's serum by adding also a like volume from test tube No. 3. Now, after incubating this mixture for a certain length of time so that the leucocytes will have a chance to take up the bacteria, we smear out a drop of the mixture and stain it and count under the microscope exactly how many bacteria 50 or 100 leucocytes have taken up. We see and count the actual bacteria within the phagocytic cells and we figure out what is the average number of bacteria per cell, and this is called the bacterial average.

Then we make a second mixture to stain and count. Here we use the same amount of the same leucocytes and bacteria, obtaining them from test tubes 1 and 2, but this time we sensitize the bacteria with opsonins not in the patient's serum, but in a like volume of normal serum which we have collected in test tube No. 4, and in the same method as before we estimate here also the bacterial average.

The rest is a simple proportion as follows:

The bacterial average of the patient is to the bacterial average of the normal as the opsonic index of the patient is the opsonic index of the normal. Let  $X$  equal the opsonic index of the patient; 1 always equals the opsonic index of the normal.

We have, therefore, a very exact method of estimating the phagocytic strength of any patient as compared with that of a normal healthy person.

Let me say here that judging from our own experience we believe thoroughly in the reliability of results obtained in estimating the opsonic index if the work is done by competent observers, and we do not believe there is any marked indiscrepancy in the results of different competent observers provided the results are based upon like conditions in the technique.

Now for the practical value of all this. To repeat:

1. We must aid phagocytosis in order to strengthen resistance.
2. Phagocytosis has two factors—leucocytes and opsonins.
3. We can increase the number of leucocytes, but that is of limited value.
4. We can estimate the opsonic strength of the infected patient.
5. We can be of marked assistance if his opsonic index can be raised and kept up.
6. This we can do as Wright has shown by the following means.

## VACCINE THERAPY.

As has been said before, the presence of invading bacteria stimulates further elaboration of opsonins in the serum. This is not only so if live pathogenic germs gain access, but has been found to be true if one takes the same germs and sterilizes them by beating (thus destroying their pathogenic power), and then inject them into the tissues of the body. This is what is meant by vaccine therapy. We inject into a patient whose opsonic, and therefore phagocytic, power is low, a sterilized culture of the very germ that is causing his individual disease, and where we do so by definite careful methods we find his opsonic index can be raised, and that when so raised his tendency is toward recovery.

In what infections can we say vaccine therapy is of definite value:

First—*Staphylococcus Infections*: Acne, furunculosis, carbuncles, and the more generalized forms of staphylococcus invasion.

Second—Infections by the Colon Bacillus: Pylitis, cystitis, pleuritis.

Third—Infections by the *Tubercle Bacillus*, especially in localized tuberculosis of the skin, bones, joints and genitourinary tract.

We have not yet had sufficient experience in the treatment of pulmonary tuberculosis to draw conclusions. Those who have say that incipient cases are cured more quickly when the usual hygienic, dietetic and climatic measures are supplemented by vaccine therapy.

Fourth—As to infections by the gonococcus, here we can say, that, judging from about twenty cases, a person infected by that organism, acutely or chronically, usually has a low index; that this low index can be invariably raised and maintained at a higher level.

After a sufficient number of cases have been treated by the gonococcus vaccine without other measures we will be able to estimate actual results. The outlook here is particularly promising in spite of the fact that the technique is difficult.

100 State Street.

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REPORT OF TWO UNUSUAL CASES.\*

G. DAVID LOCKIE, M.D.

PONTIAC.

CASE 1.—Mrs. A., aged 24 years. Twice married. One child 4 years of age by first husband. Confinement at that time normal. Said that about the seventh day after labor she had chills and slight fever, which her physician said was "slight" typhoid. These chills and fever lasted about five weeks; at the end of the third week another physician was called, who told her that she had an abscess, took her to the hospital and drained what I supposed was an abscess of the posterior cul-de-sac. Since that time she has had tenderness and pain to a more or less extent in the right ovarian region. She was advised to have an operation by her physician, located at Champaign, Ill., and was preparing to go to the hospital, when she was found to be pregnant. The family moved to my

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town, and on Jan. 10, 1906, I was called to confine her. She had some pain, but it passed away, and I did not see her again until February 10, one month later, when normal labor occurred, position O. L. A. There was a slight laceration of perineum, which I repaired. All the precautions were taken in this case to prevent infection which could be used under the circumstances. I made no examination before the confinement because the parts were presenting when I arrived.

Patient was resting easily until evening of 12th at 9 o'clock, when she had a violent chill which lasted an hour and she was still in a chill when I got to the house. Temperature per mouth 105.5, 106.5 per rectum. Pulse 130. I made an examination and gave intrauterine douche of normal salt solution, used the dull curette and endeavored to find if anything remained in the uterus, but could find nothing, and the uterus was well contracted. The temperature remained at 104 all night and the next day did not drop below 103 at any time. At 9 o'clock on the morning of the 14th she had another chill, temperature 105, pulse 130 to 140, no pain, but general condition one of septic infection. Pulse very weak. Called council and we made a blood count, finding a condition of leucopenia with apparently no resistance to the disease.

Council agreed with me that the woman was suffering from septicemia and there was little if any hopes for her recovery. Up until this time the patient had been getting two ounces of whisky every hour and four grains of quinin every two hours; this did not seem to intoxicate her, and I thought it was pretty good evidence of the intensity of the infection. At 2 o'clock on the afternoon of the 14th I went again to see the case. Found a temperature of 105 and pulse of 150 and very weak. I had decided that if I could get enough of the milk to use as an injection I would use it as an antitoxin to the infection. I was able to procure only a few drachms, as there was no milk being secreted to amount to anything. I injected about thirty minims of the milk in each arm. At 5 o'clock in the afternoon the nurse telephoned to me that the patient was in a very profuse perspiration so that the clothing and bed material had all to be removed. I saw her again at 7 in the evening, when she had a normal temperature, normal pulse and a normal respiration. No abscesses were developed at the site of injection. On the second day afterward she developed a temperature of 100, when I gave her another injection of milk and the temperature dropped to normal in a few hours.

CASE 2.—Master C. Age 18 months. Father a neurotic. Child has had epileptic attacks since its second month. Had at the time of which I write twelve to twenty attacks a day. Seizures severe and a prominent feature is the flexure and twisting backward of the left arm. It would seem at times that the arm would be dislocated, so violent are the contractions. Great deal of intestinal fermentation. A large abdomen and chronic constipation. Child taking on an idiotic expression.

Corrected diet as best we could, restricting the amount of milk and giving more easily digested foods. Did everything in our power to correct the condition of fermentation and assist elimination. This gave us



little if any result, as the seizures continued to occur about twelve times a day. Continued treatment for about three weeks, when, condition of child not improving satisfactorily, concluded to try something else.

Thought of the case of septicemia just reported, and concluded to try the child's own saliva as an antitoxin. Washed the child's mouth thoroughly and cleansed the teeth and gums and then packed cotton pledgets back of the teeth and succeeded in getting twenty or thirty drops of saliva, and after filtering this I had about ten minims, which I diluted with sterile water and injected in the child's buttocks. The injection was given at 10 a. m., and when I saw the child in the evening it had a temperature of 103, with great tenderness about the site of the injection.

The child had no epileptic attacks for the three following days—something that had not occurred before, according to the mother, for six months. On the morning of the fourth day the child had one attack on awakening, and they continued to increase every day until the child was having six or seven, when I gave the second injection. The case continued with the same results as before. I gave in all three injections, with the same results each time. The child has never had so many attacks as it did before and, while the child moved away from our town, I learned that it has never had so many attacks since.

#### DISCUSSIONS.

##### DISCUSSION ON THE PAPER OF DR. HERRICK.

DR. ROBERT H. BABCOCK, Chicago:—I can not let so excellent and timely a paper as this pass without a word of commendation. I should like especially to emphasize two or three of the points so well made by the speaker. First, a chronic valvular lesion is a *locus minoris resistentiæ*, so to speak. In other words, when the individual has such a lesion there may be set up no inflammation of other valves, but there may be fresh endocarditis of the already diseased valves whenever he becomes infected. It is important, therefore, from the standpoint of prophylaxis in these cases, that the physician be alive to the dangers of the case, and he should be on the watch to protect his patient against a throat infection or any other infection which may be the atrium for germs that may lodge on the diseased endocardium.

A second point is with reference to murmurs. The essayist is right in saying that murmurs are not always present, and therefore we can not always rely on variability in the character of murmurs for diagnosis. Moreover in a chronic valvular lesion a murmur may remain unchanged in spite of a fresh endocarditis. Many a case of valvulitis becomes one of malignant endocarditis and goes on to a fatal termination without obvious change in the murmurs whatever. I have seen such a case recently.

I would like to dwell on the necessity, in obscure cases, of frequent examinations of the urine, since a renal infarct may escape detection unless the urine is frequently examined, sometimes even daily examined, and hence the detection of albumin and blood in the urine in a suspected case may clear up the diagnosis.

DR. FRANK BILLINGS, Chicago:—I rise to emphasize what Dr. Herrick and Dr. Babcock have said. I think with our modern methods of examination and our ability to make blood cultures, we are enabled to recognize ulcerative endocarditis now when formerly we were unable to do so. As the essayist and Dr. Babcock have said, there may be no alteration in the abnormal sounds of the heart; there may be no murmur whatever, or a murmur which was present as a part of the chronic disease may not be altered when a mycotic vaccination

occurs upon the valve, making it an ulcerative or malignant form; and inasmuch as emboli may be delayed in their progress through the blood, we have, therefore, no manifestations clinically as infaret, or the effects may be concealed. In many instances, therefore, we have nothing but the general condition of the patient; the febrile condition of a rather atypical character, without any definite information upon which to base a diagnosis. Blood cultures will frequently, and if repeated, most certainly reveal the character of the septicemia.

In my own experience in recent years, we have done this, the pneumococcus has been the most constant germ causative of ulcerative endocarditis. The pneumococcus is often of a strain difficult of recognition when first obtained, and only by cultural methods, repeated, and by animal inoculation and recovery of the germ itself, can we finally come to recognize it as the real pneumococcus.

Within four weeks I have seen three cases of malignant or ulcerative endocarditis due to the pneumococcus. One of them Dr. Herrick has seen.

A young man, twenty-one years of age, was admitted to the Presbyterian Hospital about three weeks ago. He gave a history of acute articular rheumatism two years ago, and stated that his physician had not told him that he had a cardiac lesion accompanying this. He was well until five months preceding his admission to the hospital. Then he was seized with pain in the left hip near the joint; this passed away after a few hours, so that he was able to walk. The pain, however, recurred in two weeks, and from that time on until his admission to the hospital, his chief complaint was intense pain in the left hip which radiated along the sciatic nerve. And this was so evidently a sciatica that he was treated for it by a physician. During the succeeding few weeks he lost thirty pounds. He was febrile; he had a rapid pulse. When admitted, he had a temperature of 102°, and the fever has been of an irregular type since then. What I mean by irregular type is that it has been intermittent a part of the time, and remittent at others. His pulse was 120 or 130. He looked pale and ill. Examination of the heart showed the classic murmur of aortic insufficiency, with all of the phenomena which go with that. He had in the left hip a pulsating, expansile tumor over the region just above the sciatic notch, about as big as a large English walnut. This had a thrill, and a murmur was heard with the stethoscope. In short, it presented the usual characteristics of an aneurysm. Blood cultures showed an organism that resembled somewhat a streptococcus, but later, with cultural methods, it proved to be a strain of a pneumococcus. Since he had been in the hospital he has remained very ill; but the pulsating tumor had ceased to pulsate, and in its place is a boggy, ill-defined mass. Two weeks after the pulsation ceased—about a week ago—a hollow needle was passed into it and about half an ounce of bright red blood passed into the syringe.

The case is one of ulcerative endocarditis, due to the pneumococcus. I am not quite sure as to the nature of the pulsating tumor. It seems to me, that the boy has not only an ulcerative endocarditis, but probably an infective endarteritis as well, with dilatation of the artery aneurysmal in character.

One word concerning treatment. If there be anything in the idea of vaccination against bacterial disease, we may have some help here. If we can secure cultures from the individual of the organism which causes his disease, and with that culture can vaccinate and revaccinate him, studying his blood at the same time, as to leucocytes and opsonins, we may find a specific cure.

In one of the other cases of the three we have pursued that method of treatment. The patient is a girl. Her leucocytes were below normal at the beginning. She has received three vaccinations, which raised leucopenia to over ten thousand, and her opsonic index, which, for the pneumococcus, was .5, was raised to 1.3 for this organism, which she had in her own blood. This remained up for four days, then fell, and following another vaccination it ran up again, and with that improvement in her leucocyte count and in her opsonins, there was a general improvement noticeable. Her temperature went down; her pulse fell. Her temperature, I believe, declined as low as 98.5° for a whole day, whereas formerly it

had risen to 103.4°. Her strength was increased; her appetite was better; she rested better in every way. The tumultuous sounds in the heart remain the same, and emboli continue to be shed by the heart and are recognized as petechial emboli spots in the skin and as infarcts in the internal organs. Experience in this case is certainly encouraging and may indicate that with vaccination of the germ which causes the disease, we may get possibly some help as in the case of this girl of a specific kind.

DR. L. R. RYAN, Galesburg:—When Dr. Herrick closes the discussion, I would like to have an expression of opinion from him with regard to the effects of the tonsils on ulcerative endocarditis. I speak of this for the reason that a young physician in our city died two years ago from an undoubted ulcerative endocarditis. Three years prior to his death I removed both of his tonsils. He was taken with fever; he had a rapid and irregular pulse; he lost in weight, so that a diagnosis of tuberculosis was made. He was advised to go to Texas and spend two or three months there. He went and lived out-of-doors for several months, without receiving any benefit. This physician had a marked mitral regurgitant murmur. About three weeks before his death I was called upon to see if there was any more tonsillar tissue that might be removed. On examination I found nothing but a fibrous mass as the result of the previous operation.

The question arises as to whether or not this ulcerative endocarditis was due to the original tonsillitis. I would like to have an explanation, if possible, as to whether or not there is any connection between the tonsils themselves and that part of the anatomy of the heart which may produce an infection; and if it is not true that the tonsil acts as a generator of the leucocytes and attempts to destroy the bacteria by phagocytosis rather than to act as a conveyor of micro-organisms. In this case the tonsils were removed three years prior to the development or recognition of the ulcerative endocarditis, and it does not seem possible that the ulcerative process could be fed by the tonsils, although one of our best authorities claimed this to be a fact.

DR. ROBERT B. PREBLE, Chicago:—There is one other pathological process of which more might be said than has been said by Dr. Herrick in his paper as an occasional cause for the ulcerative endocarditis, and that is chronic valvular thickenings which come about as a result of an arteriosclerotic process. Any valve that is thickened by such a process is a source of infection by bacteria, as is a valve previously infected by bacteria. Of the valves which are prone to such changes, the aortic are the most common and most important, and we find in that fact an explanation of another fact, which was pointed out some time ago, to this effect, that in cases of pneumococcus endocarditis which, as Dr. Billings has remarked, is a frequent cause of ulcerative processes of the valve, they are more common on the aortic than upon the mitral, although in other forms of endocarditis the mitral valve is most prone to infection.

Another fact that has been pointed out is that ulcerative endocarditis of the pneumococcus type is more common in the latter half of life than in the middle half of life, although in general ulcerative endocarditis is many times more common in the young than it is in those who have passed the middle point of life, and these facts are all brought together in this way, that in the latter half of life the aortic valves are, in a large percentage of people, altered by an arteriosclerotic process, although clinically there may be no evidence of such an ulceration. When such an individual acquires pneumonia, the pneumococci found in these altered valves have an opportunity for growth, and we have implanted upon the arteriosclerotic changes acute ulcerative changes which result from the pneumococcus. I do not wish to be understood as saying that the pneumococcus only affects the aortic valve in the older individuals, because we see a primary pneumococcus endocarditis upon a mitral valve, and in younger individuals, with pneumococcus endocarditis, it starts with the mitral valve and is never primary upon a normal aortic valve.

One other thing I would point out and emphasize is the value of blood cultures in making a differential diagnosis.



A few months ago a young man came into the hospital in a condition which led us to think of typhoid. The history, however, and the mode of onset of symptoms were somewhat atypical, yet after thoroughly examining and investigating, an infantile acute articular rheumatism. The question arose as to whether or not the fever, which was somewhat atypical in its course, was the result of a relighting of the old endocarditic process, and the blood cultures made at the time gave us a pure growth of the typhoid bacilli, so that we were no longer able to entertain the suspicion of exacerbation of the old endocarditis. A few days later, however, the boy had a number of intestinal hemorrhages from which he died. The observation was altogether a clinical one, and there was no opportunity for an autopsy.

DR. BERTRAM W. SIPPY, Chicago:—I wish to take this opportunity to commend the excellent paper of Dr. Herrick and to emphasize one or two points. If we wish to avoid overlooking malignant endocarditis, when present, it is well to fall into a routine in our diagnoses of heart lesions. Whenever a diagnosis of valvular disease is made, it is not only well to determine the manner in which the heart is doing its work, but the degree of compensation that is present. A point that enters your mind is this, that the valvular disease has an arteriosclerotic basis or chronic endocarditis basis. Are there any signs in this case suggestive of an acute infective process? That will lead up to a point as to whether the signs suggest fever, and it will lead up to the point as to whether a benign or malignant process is present. Then let the question run through your minds that we may have signs of a malignant endocarditis. If there is in a given case elevation or irregularity of temperature, which is unexplained by any other cause, associated, perhaps, with chills, or without chills, associated with a gradual, progressive anemia, which has existed for a long time, together with an enlarged spleen—if we have two or three of those symptoms present, we should suspect the presence of a malignant endocarditis. If, in addition to those, we have the presence of petechiæ, the diagnosis of valvular lesion is well-nigh made, especially associated with evidence of infection, regional embolism, gangrene of the extremities, etc. With all these signs and symptoms, the picture is so distinct and unmistakably clear that we should never overlook the possibility of malignant endocarditis, and it seldom will be, if we bear in mind this picture and think of it.

DR. HERRICK (closing the discussion):—Dr Billings and Dr. Preble have emphasized very properly the great importance of making blood cultures as an aid to diagnosis. This is very necessary, particularly if we are to have specific sera or vaccines, for then we shall have to recognize the micro-organism that is at fault in a particular case before knowing just what vaccine to apply.

I am glad Dr. Preble has brought out more fully what I merely referred to in a few words, that is, that sclerotic processes may be a basis for the implantation of micro-organisms, and that we should always remember that a valve damaged by sclerosis constitutes a point of minor resistance.

With regard to the question asked by Dr. Ryan, I do not feel that one could give a very definite answer. Assuming that infection did not occur at the time of the operation for the removal of the tonsils, I should hardly think that the embedded tonsil where the tissue is firmly scarred, would be the port of entry for micro-organisms. It is however true that in not a few instances an acute tonsillitis is the starting point of an ulcerative endocarditis; that it is through the tonsils as an infection atrium that the germs gain entrance.

#### DISCUSSION ON THE PAPER OF DR. ROBINSON.

DR. JAMES A. EGAN, Springfield:—That the subject of reciprocity is of but little interest to the members of the Illinois State Medical Society is shown by the size of the audience present. Here in the section in which one hundred and fifty members were assembled an hour ago, less than a dozen remain to listen to this widely advertised paper on a very important subject. This however, is no reflection on the essayist. It merely demonstrates a lack of interest in the sub-



jeet presented. But this lack of interest has been shown before. A year ago I read a paper on the same topic at the Springfield meeting, and was then greeted by an audience of less than two score.

As the essayist has criticized the attitude of the Illinois State Board of Health in the matter of interstate reciprocity, in that portion of his paper read by him, I seem called upon to defend the position of the Board. I deem it sufficient, however, to call attention to the fact that the form of reciprocity condemned by Dr. Robinson has been incorporated in the amendment to the medical practice act just passed by the General Assembly, which amendment has received the endorsement and approval of every officer of the Illinois State Medical Society; I might also note that the method of reciprocal registration so strongly advocated by Dr. Robinson, which is similar to that insistently urged upon Illinois by neighboring states, for years past, was rejected less than a month ago, by a conference of the officers of the state societies of the four schools of medicine in Illinois.

#### DISCUSSION ON THE PAPERS OF DRS. HOLLISTER AND LOCKIE.

DR. L. L. McARTHUR, Chicago:—This heading of the subject matter for today as "Borderline Cases" seems to me to be particularly felicitous, as many of these subjects are distinctly on the borderline between internal medicine and surgery. I believe that in the past surgeons have had a larger proportion than the internists have had of these borderline cases, and it looks as though now that it is going to be possible for the surgeon to return the compliment and turn back to the internist many of the cases that have been in the past treated surgically.

Knowing that I am to open the discussion on both of these papers, let me reverse the order, and speak of the last paper first.

The secretions of the body of an animal infected with any infectious process have been demonstrated to contain certain bodies which have antidotal influences to that infection, and Dr. Lockie has probably gleaned his idea of utilizing the milk of the thyroidectomized goat for thyroidism in the human being. The result of the experiment which he made has borne out and justified the making of it. I would like to urge, however, and to emphasize it as distinctly as it is possible for me to do, that it is highly dangerous to take the secretion of the breast, the secretion of the mouth of any infected individual, and inject such secretions into his general tissues, until they have been pasteurized, until they have been sterilized, for it is impossible to prevent the access of some of the mouth organisms in the case of saliva, or some of the infective organisms in the case of the breast secretion. The efficacious agent in the majority of these antidotal bodies resists the destructive influences at 60° C., while the micro-organisms do not, so that it would be desirable to avoid the repetition of such an experiment without having first carefully sterilized the product.

Coming to Dr. Hollister's paper, I think it is well for us to have a clear understanding as to what opsonins are. These opsonins have been named by Wright, and he seems to have particularly selected a happy term for them, namely, as the bodies which aid the leucocyte in digesting, absorbing, or swallowing the micro-organism. Opsonin is a Greek word, signifying "I cater to; I prepare food for." The opsonins are the Worcestershire sauce, the curry that invites the leucocyte to go in and digest the food that is presented to him. Without these aids to digestion and the leucocytes' digestion; without these peppers, these sauces, the leucocyte will not touch them. We find it is possible to stimulate the leucocytes. Dr. Lockie, in his case, found that he could stimulate the leucocytes of his patient to take up the organisms with which the patient is suffering by introducing some live organisms from the breast milk into the general circulation. The introduction mechanically into the general circulation of the dead organisms will stimulate the leucocytes, showing it is not the living organism itself, but some bi-product, and our conception of it is that possibly it is a mild bacterial ferment,<sup>9</sup> which, like pepsin or pancreatin, acts upon the albuminoids in the body—acts like a grain of pepsin, converting

say 5,000 grains of albumin into the proper opsonins. But that is purely theoretical.

In regard to the opsonic theory and treatment of Wright, I desire to refer to three points.

1. Diagnosis. We can make a diagnosis of the nature of an infection by determining the index of that patient to that particular organism from which he is suffering. For instance, let us suppose we suspect a case of tuberculosis. In the past, we gave tuberculin in large doses—one, three, five milligrams on alternate days until he has collapsed, with great sweating, and elevation of temperature. Now, it is not necessary to give such a patient anything. You take, say, about fifteen drops of the patient's blood; you do not give the patient anything to make a diagnosis. You can make a diagnosis in obscure tuberculous cases by giving them such strong doses as will produce fever. But it is no advantage to produce fever. This is not only true of the tubercle bacillus, but with every other organism that is destroyed by phagocytosis. And here Dr. Hollister and I have become interested in this subject from a surgical standpoint. Why? Because the common surgical affections we meet with, those produced by the streptococcus staphylococcus, gonococcus, tubercle bacillus, typhoid bacillus, and the colon bacillus, are destroyed in Nature. How? By the leucocytes. Other organisms interesting to you as medical men are destroyed by the antitoxin which may be produced, by the bacteriolytic action which may be produced in the laboratory, and in the case of the cholera organism. We have four different actions produced—bactericidal, bacteriolytic, phagocytic and antitoxic. We have been able to demonstrate that a patient is infected, not by the tubercle bacillus, but by the bovine bacillus. We have found a means of differentiating between the organism which exists in the cow and that which exists in the human being, and which has a different opsonic index from that of the human bacillus. The human bacillus does not influence the opsonic index at all.

A leucocyte count in the past of 15,000, 18,000, 20,000, has been interesting to us as surgeons because we knew there was an active influence going on, calling out a number of phagocytes. This opsonic index is also interesting to us for the same reasons. With the aid of the opsonic index we are not only enabled to make a diagnosis, but to apply treatment, thereby increasing the digestive powers of those eighteen or twenty thousand leucocytes, as well as increase their number. Unfortunately, it is not going to be possible either for the general practitioner or for the surgeon to do this work himself. It is simply laboratory work which will require an expert and trained laboratory assistants, men who will devote their whole time and attention to it, and the process is so time consuming in the making of diagnoses and ascertaining the opsonic index, that it can not be followed out by the active practitioner. I, therefore, feel that it has got to come to the municipality to establish in connection with other laboratories a laboratory for this opsonic work, which will enable the active practitioner to draw off a little blood, put it into a test tube and then be told later on by the laboratory man whether the opsonic index of the patient is low or high. It is well to increase the power of the patient to ward off any particular organism from which he may be suffering. Let the laboratory worker determine what the particular organism is by having the practitioner send him a specimen of the blood of the patient for examination, the laboratory worker sending back to the practitioner a report of the culture from the stock bottle, or a special one, and the autogenous germ is the better one, a culture having been made from the organism with what the patient is affected. It is only under these circumstances we can take advantage of this method.

In conclusion, I wish to say that when a brother practitioner sends his wife to you for the relief of a discharging fistula, after the removal of a kidney eighteen months ago, and says that his wife has had to keep a dressing on there ever since, changing it three or four times a week, and that she is ready to submit to an operation for its closure, you will be prompted to say, let us try a simpler process. Let us vaccinate her with the vaccine of the organism with which

she is suffering, and you will see such a fistula as that heal in three weeks, so that the patient does not need to wear a dressing any longer. When such things can be accomplished, you will be influenced to go ahead in this work.

DR. J. P. SIMPSON, Palmer:—We are greatly indebted to Dr. Hollister for the clear manner in which he has discussed the opsonic index. I have been endeavoring to get a comprehensive grasp of the subject from *The Journal of the American Medical Association* and other scientific journals. However, I must confess that it has been slow work for me. I now understand it most clearly, and from this I judge that all his auditors have understood him.

First of all, I fear that this vaccine treatment to which he refers, is not yet available to country physicians, much as I hope that a feasible plan will yet be provided therefor. However, we can do the next best thing.

Many of you will doubtless recall the Huxley lecture delivered at Charing Cross Hospital, London, by Prof. William Welch about 1902, and published in the weekly *Journal of Science*, in two successive issues. In this lecture he tells us something which I believe has never yet been disproved, namely, that diphtheria antitoxin contains a most perfect complement, or adjuvant for the antibody, in which respect it differs greatly, and for which reason it has far surpassed in practical results, the whole list of other antitoxins like tuberculin, antistreptococcal serum, antipneumococcal serum, etc. In a number of diseases it furnishes the equivalent of a most useful leucocytosis, ready prepared. I have tried it in lobar pneumonia, follicular tonsillitis and scarlet fever, with most prompt and happy results.

In the first instance that I tried it, for other than its specific indication, was a follicular tonsillitis which began on one side without pus formation, and later spread to the other side with suppuration and in fact a well marked cervical cellulitis.

Of course, in the country we have not got the municipal machinery by which we can have a diagnosis of diphtheria made in a scientific way; but when diphtheria is well developed we should all know what it is. I assured myself that this case was only one of follicular tonsillitis, the patient being my brother's wife whom I had repeatedly treated for this malady.

I discovered two things by this experience, namely, that old diphtheria antitoxin is not always inert (and this before I had read in recent literature that this is the case) and, acting upon the hint gained by reading between the lines of Dr. Welch's lecture, learned that its virtue is not limited to the treatment of diphtheria alone.

I could only get 2,000 units, that was more than a year older than the time limit fixed by its makers. This I injected at three o'clock in the afternoon. In four hours, there was a distinct quieting of the pulse and a lowering of temperature. In diphtheria we never expect such results—especially from so small a dose—in less than six to eight hours. The next morning the intense hyperemia had subsided, and I readily located and evacuated a large pocket of pus. I had previously scarified the throat six times, at the earnest request of the patient, and had failed each time to locate the abscess, owing to the extreme distension of the tissues. Her recovery was very prompt, indeed.

DR. WILLIAM H. WILDER, Chicago:—I would like to speak of some of the phases of this subject which appeal to the ophthalmologist. Within recent years the question of tuberculosis affecting the eye has come particularly to the front, chiefly because of the observations made particularly by von Hippel, von Graefe, and others, who claim that many of the mysterious diseases of the eye which were formerly classed in the category of uveitis are really tuberculous in nature, and a few men in this country have been engaged in the study of these cases, and it has come to my observation in the last year or two that we can make considerable use of the tuberculin test in many of these cases, and I merely enter into this discussion to get partly a little information, and partly, not exactly to take exception to what Dr. McArthur has said, but to get a little clearer idea as to the value of the diagnosis with tuberculin. He mentioned that it might be possible



to establish a diagnosis of tuberculosis, for instance, by a study of the opsonic index. While that may be true, when we come to apply that idea more especially to a local field, such as the eye, it becomes very essential that we get more definite information than that.

I have had a number of most interesting cases within the last year, which I intend to make the subject of a paper before long, that seemed to prove that if there is any value in the tuberculin test, the lesion was a tuberculous one, and yet without definite local reaction on part of the patient we would not be able to establish that diagnosis. For instance, given the patient with the peculiar condition of the eye which we call uveitis, with opacities in the vitreous which completely obscure vision, what is that caused by? Give the individual a diagnostic test of tuberculin and you may get a reaction; it may be the individual has a lowered opsonic index. That may indicate tuberculosis, but is it tuberculosis of the eye? That is a question which confronts the ophthalmologist in such cases. The individual may have tuberculosis in any part of the body, a quiescent affection, which will give a reaction with large doses of tuberculin. If you get that general reaction, as I have had it in some cases with even as little as one milligram of the old tuberculin, it would not prove that the lesion was in the eye. But we must look for local reaction, and when we find that local reaction we can safely say that the lesion in question is a tuberculous one. It does not seem to me, as an individual studying along this special line, that we can derive so much benefit from this determination of the opsonic index in diagnosis as we can later in therapeutics.

I have at present under observation two interesting eye cases, the opsonic indices of which I am studying, and hope to get definite results from them, as I have in several others in the past. The study of this question is surely a step in the right direction, but whether or not all the claims of Wright can be substantiated, remains yet to be seen. That is the particular practical point I wanted to raise in reference to diagnosis of tuberculosis of the eye.

DR. T. J. WATKINS, Chicago:—I have been much interested in watching the work of Dr. Hollister and Dr. McArthur at St. Luke's Hospital, and they deserve a great deal of credit for the immense amount of it which they have done, and this work has been done at the expense of a large amount of time and the expenditure of a large amount of money, and we are very fortunate to be able to profit by their work.

This is a subject that is receiving an immense amount of attention, which is proof of what seems to be its practical importance. At the recent meeting of the Congress of Physicians and Surgeons, in Washington, this subject was considered by several in papers that were read. The surgeon is very sorely in need of some such help as this, as the surgeon's work in the past has been very crude in the handling of these infections. We have been able possibly in some cases to cut off the supply of infection; at other times we have been able to drain pus from infections, but after pus has formed, usually its influence has proved as fatal as ever. But pus is not considered of as much importance as formerly. Really, there are only a few dead soldiers.

I am glad Dr. McArthur went into the theory of the action of the sterilized solution of the infection, as one in studying this subject must think that the power of such a solution, when injected, must be very small, and that it can have very little effect on the infection. There are numerous things that will have to be worked out in this line. First, we have no idea what causes the increase in leucocytes in infection, or where this increase comes from. Second, we have no idea as to where they come on suddenly when the infection is over.

I would like to ask Dr. Hollister if there has been any investigation made to show what effect can be had on the opsonic index by other means, such as forced nutrition, the supply of a large amount of sunshine, the supply of a large amount of fresh air, and other hygienic conditions?

I think the doctor from Pontiac (Dr. Lockie) deserves credit for his desire to do original work, and for his thoughtful study of cases; yet I feel a word of



caution should be given in making such experiments, as Dr. McArthur has especially remarked with reference to the injection of saliva from the mouth, as bacteriological examinations have shown that saliva frequently is very aseptic, even in apparently normal mouths.

DR. —————, I recall two cases that were cured by tuberculin injections, one of which I will relate.

A woman was brought to me on the fifth of September, who had been bed-ridden for a year. She had borne a child one year previously, and about two weeks after that she was confined to her bed and remained there for a whole year. She weighed eighty-five pounds when she came in; her knees were flexed upon the thighs and the thighs upon the abdomen, with a mass in the groin under Poupart's ligament, and with a perforation in the iliac bursa. Two days afterward I cleaned out this mass, and found that the whole iliac fossa was invaded with tuberculous granules, also the sacro-iliac joint in the neighborhood of the pubes, and I thought she was going to die. On January 20, 1906, we began tuberculin injections. Dr. Hektoen took the opsonic index at different times. We continued that treatment until April 1. We began the tuberculin treatment once in twelve days, and took the opsonic index two or three times a week, and we continued until February 1, 1907, to see the result. I saw her last week and she was able to walk without crutches. We used one-thousandth of a milligram, and increased to one five-hundredth.

DR. EDWARD H. OCHSNER, Chicago:—Somebody ought to give a word of warning in reference to the vaccination treatment. When a new therapeutic agent comes out, it is almost sure to do a lot of injury until we know just exactly how the thing stands, and I am perfectly confident that unless some one gives this warning or caution, the Wright vaccination treatment, which I am thoroughly convinced is a great discovery, will do quite as much harm in the next five years as it will do good. It is not a harmless procedure; to the contrary, it is quite a dangerous one, and I have myself learned that in two instances it was fraught with great danger to the patients, although in no instance was the ultimate result bad. It might have been bad had not Wright's directions been followed to the letter. If, in the use of tuberculin, you give the tuberculin either in too large a dose, too frequently repeated, or at a time when the opsonic index of the patient is going down, you can do a tremendous amount of harm, and for the present, at least, I don't believe anybody is justified in using tuberculin as a therapeutic agent without the careful reading of the opsonic index. Only recently I had the following case:

A young woman, with very extensive tuberculosis of the glands of the neck, was operated on, and on the 10th day we began the injection of therapeutic doses of the new tuberculin. She became progressively worse until we stopped the injections. I did not know at that time that any major operative interference caused a distinct recession of the opsonic index. I have learned it since, and I do not give the tuberculin until the opsonic index is again on the ascent. We take the opsonic index when the patient is admitted; we take it again a few days afterwards, and again, three or four days later, and, as a rule, the opsonic index declines for ten, twelve, fourteen, sixteen days after a major operation and as soon as it begins to go up again, we begin the tuberculin treatment. If we had continued the tuberculin treatment while the opsonic index was going down, we would have been sure to have done a great deal of injury to this patient. How can you know what the opsonic index is doing unless you read it?

We had another experience; a young woman, with extensive subcutaneous infection of the face. My associate (Dr. Abelman), who does this work, cultivated the micro-organism, isolated it, made a vaccine, and injected it. One day we gave too large a dose. He had been giving one hundred millions, two hundred millions, and for a short time he gave three hundred millions. He gave too large a dose that time, and within forty-eight hours the infection, which had involved the face, began to spread all over the neck and shoulders like a fire.

There was only two-tenths of a degree rise in temperature beyond what she had had before. There was only a slight acceleration of the pulse. There was no appreciable local disturbance, and yet this patient had received an excessive dose of the vaccine. In this particular instance, to be sure, we had local manifestations of an overdose, but supposing the infection had been a tuberculosis of the lung, how would we have known that we had given an overdose? We knew in this particular instance because of two things. First, because of a flaring up of the condition locally, and, second, because of the excessive drop in the opsonic index. Had we given this woman repeated large doses, there is no telling what injury might have been done. She might have been killed by metastatic abscesses.

I would warn the profession that for the present, at least, we have no right to use vaccine therapy unless we read the opsonic index.

In reference to Dr. Lockie's paper, I will say, I was much interested in it. When Dr. Lockie came to Chicago he mentioned this subject of milk injection to me. This was about a year ago. He told me that some prominent professors in Chicago had ridiculed the idea. Although I did not believe in it very much, yet the first case in which I had an opportunity to try it, I tried it. It was a case in which the temperature was 104. The patient had not slept for seventy-two hours. Her abdomen was markedly distended; the uterus was one boggy mass; she was seriously ill, though not in extremis. I took 4 c.c. breast milk, collected in the afternoon, and injected it under the breast, after careful disinfection of the breast. I did not pasteurize it because I was afraid I might destroy the antitoxin. I was very careful to have everything clean. I injected 4 c.c. under the breast at 2 o'clock in the afternoon. At 11 o'clock p. m. I injected another 4 c.c. under the breast, and about 3 o'clock the following morning that patient, who had not slept a wink for seventy-two hours, was asleep and slept almost continuously for forty-eight hours, at the end of which time the temperature and pulse were normal. While two swallows do not make a spring, and two cases do not prove much, yet they prove enough to make the subject worthy of investigation.

DR. HOLLISTER (closing the discussion):—I would like to say a word or two explaining the curve of the *normal* index, emphasizing those points especially that Dr. Ochsner brought out.

Let us consider this line (indicating on blackboard) the normal index line. The normal person's index running on for one hundred days, or a hundred times, on alternate days, does not stay, according to our laboratory technic, accurately on this line; but this normal person does not vary more than from .8 to 1.2. The normal range of different organisms varies somewhat one from another. In tuberculosis the normal person's index does not vary more than from .8 to 1.2. His line will give something like this from day to day through the course of the examination, that is, if he has not tuberculosis. On the other hand, if he has a chronic localized tuberculosis, and the technique has been correct, in the great majority of cases you will find his index down here. (Indicating.) If he has a "generalized or systemic" tuberculosis (I mean by that, if he is continually autoinoculating himself), he will have an index that is not necessarily low, but very variable, and his index and his curve are apt to be low one day, but above the normal the next day, etc., extremely variable.

There is just as much indication when the index is extremely variable that the patient has tuberculosis as there is when the index is continually low, and that brings out the fact that autoinoculation is going on in a patient that has a systemic infection rather than a localized infection. The constant giving of a vaccine to such a patient in too large doses tends to make him worse.

Let me illustrate another point, to bring out the reason why we must not give too large doses; the reason why the old big doses of tuberculin did harm. Wright illustrates it in this way: We have the index here (indicating) below the normal line; we give a small dose of vaccine, and the index rises intermittently. We can thus raise the index up to the normal and keep it up to normal or above. A

patient with a low index usually is not getting better, but when his index is raised above normal, his progress is towards recovery. That is what we try to do in every case. Finding the opsonic index of the patient low we try to raise it by the injection of the vaccine. Let a patient be given a good average dose of vaccine, such as we know it from our experiments to-day, and the patient's opsonic index will temporarily drop a little, but later will go up higher than it was before and by proper dosage we can go on keeping it up within certain limitations. If we give a patient too large a dose, the index will not go up, but it will go down farther than it was. It might possibly rise a little, and possibly not at all. Then, if on top of that dose, we give another dose, you will keep the index going down (within limitations). If you do that, you do the patient harm, and you certainly do that when you give too large doses of tuberculin or any other vaccine, and it is along that line, i. e., emphasizing the negative phase, that much harm follows clinically. On the other hand, if the patient is emphasizing the positive phase and keeping the index above normal, much good follows clinically.

I desire to emphasize another point which was referred to by Dr. Ochsner. We not infrequently hear a practitioner say, "I am using the vaccine treatment. I am giving vaccines." When asked, how much, he will often reply that he gives for example so many c.c.'s of a week's old culture of staphylococcus. What does that mean? Take two test tubes, let us say we have a week's old culture of a bacterium here (indicating); implant a loop of that growth into this test tube; grow it for a week. Take a second loop identical with the first, implant it into a second test tube under the same conditions, and you find later in the first test tube, say six thousand organisms per cm., while in the second you may get many times six thousand. The point is this, that unless you have a definite dose for your vaccine, you are at sea, so to speak, and it is like giving the thirtieth of a grain of strychnia and then thirty grains of strychnia. That is being done in carrying out the vaccine treatment to-day, simply because it is an easy matter to make a vaccine in such a method. You will drive your positive phase down to a negative phase, and you will hurt your patients in a certain number of cases if you administer such varying dosage.

With reference to the remarks of Dr. Watkins, who asked about the result of the index in forced feeding, etc., I can only say this: There is one Englishman who has made some investigations along that line, and he finds that in badly nourished people, children, etc., in a limited number of cases he has examined, tuberculo opsonic index seems to run a trifle lower in illy-nourished individuals than in well-nourished individuals.

There is one other point I would like to explain (and I have spoken of it often), namely: One of the reasons why the results obtained by passive hyperemia secured by, for example, the cupping apparatus of Bier, are dependent upon the opsonic index. Given a chronic fistula, i. e., running from the arm or leg down to a bone or back, down into the kidney. Bier puts on a cupping apparatus, and floods the whole diseased focus with fluids from the general circulation. He accomplishes good by so doing. *He floods the localized area with the fluids of the general circulation.* Examine, if you please, the opsonic index of the general circulation, and we find it, for instance, .8. Examine then the fluid serum that is coming out of the fistula before the cupping apparatus is put on, and we find it low—.3. We apply the cupping apparatus over the fistula. Then if we make an examination, we find that the opsonic index of the exuding fluid is now up to the general circulation. Combine the use of the cup with vaccine therapy, and you raise the opsonic index above 1, and then for the localized area, with Bier's apparatus, you can raise in like manner the local index. This explains to a certain extent the interdependence of vaccine therapy and passive hyperemia.

# ILLINOIS STATE MEDICAL SOCIETY.

Minutes of the Fifty-seventh Annual Session held at Rockford,  
May 21, 22, and 23, 1907.

## FIRST GENERAL MEETING.

The Society was called to order in general session in the Church of the Christian Union at 9:10 a. m., May 21, 1907, by the President, Dr. Percy. Divine blessing was invoked by the Rev. H. M. Bannen of Rockford. Dr. T. H. Culhane of Rockford made a verbal report on behalf of the local committee of arrangements. In behalf of the members of the Winnebago County Medical Society he said they would do all in their power to make the stay of the members and guests in Rockford very pleasant. He called attention to the address of President Percy, to be delivered in the evening. During the afternoon the ladies would be given an automobile ride, enabling them to see the beauties of the city and its environs, after which they would be taken to the country club house, where a reception would be held. Wednesday evening at 8 o'clock a testimonial banquet would be given in honor of Drs. John H. Hollister and W. O. Ensign. On motion of Secretary Weis the physicians of Wisconsin and Iowa, in attendance at the meeting, were extended the privileges of the floor and asked to participate in the discussions. Adjourned.

## SECOND GENERAL MEETING.

The Society was called to order at 8 p. m., by Dr. L. H. A. Nickerson of Quincy, First Vice-President. Rev. Father Flarety invoked divine blessing. Hon. Mark Jardine, Mayor of Rockford, delivered an address of welcome. The response to this address, in behalf of the society, was made by President Percy. President Percy then delivered his annual address, "Medicine of the Future." Dr. Robert B. Preble of Chicago delivered the address of Section One. He selected for his subject, "The Rôle of Gross Parasites in the Diffusion of Infectious Diseases." Adjourned.

## THIRD GENERAL MEETING.

The General Meeting was called to order Thursday at 11 a. m., by President Percy. The Secretary presented a brief report of the proceedings of the House of Delegates, which, on motion, was adopted. The next order was the induction of the newly-elected President into office. Owing to the illness of Dr. Baum, the newly-elected President, Dr. H. N. Moyer acted as his spokesman.

Dr. Moyer said he regretted very much that Dr. Baum was not able to be present, on account of illness. However, he desired to say that Dr. Baum was a man who does things, and does not say much about it. Dr. Baum has been selected because of his peculiar ability to do the work that seems to be before the Society for the next year. Dr. Baum was not a



candidate. He has made no promises, nor has he authorized his friends to make any promises, but great things are to be expected from his administration. He is a very quiet, but very efficient worker. He has a great grasp of the situation. He was sure that Dr. Baum would conscientiously and efficiently discharge his duties as President. (Applause.)

The retiring President, Dr. Percy, thanked the members for their uniform courtesy and kindness to him in presiding over the deliberations of the Society.

Dr. William H. Wilder of Chicago announced that the Governor had vetoed the objectionable optometry bill. Accordingly, he presented the following resolution:

*Resolved*, that this Society extend to Governor Deneen its thanks for the valuable efforts he has made in behalf of the profession, and particularly in behalf of the public weal, in promoting salutary legislation, and in defeating that which was inimical to the public interest.

The resolution was seconded by Dr. Pettit, and others, and unanimously adopted.

Dr. James A. Egan also announced that in the Forty-fifth General Assembly the medical profession had succeeded in securing the passage of every bill that they started out to get passed, and had also succeeded in preventing the passage of every bill which they had opposed. (Applause.)

On motion of Dr. Wilder the General Meeting then adjourned *sine die*.  
E. W. WEIS, *Secretary*.

## MINUTES OF THE HOUSE OF DELEGATES.

### FIRST SESSION—MAY 21, 1907.

The House of Delegates met in Memorial Hall at 8:15 a. m., and was called to order by the President, Dr. J. F. Percy, of Galesburg. The Secretary called the roll, there being twenty-eight present. The President called the attention of the House to the advisability of sending a telegram to Governor Deneen requesting him not to sign the optometry bill which had passed both the House and Senate. He called upon Dr. Geo. W. Webster to point out the undesirable features of this bill. This Dr. Webster did, after which Dr. F. R. Green moved that the President appoint a committee of three to draft a suitable telegram to be sent to Governor Deneen asking him to veto the optometry bill. This motion was seconded and carried. The President appointed on this committee Drs. Green, Aderhold and Mitchell. Adjourned.

### SECOND SESSION—MAY 22.

The House was called to order at 8:40 a. m. by the President. The Secretary called the roll and there were thirty-eight present. The minutes of the previous session were read and approved. Dr. Percy then delivered an address to the House of Delegates, and it was moved that the President's address be referred to a committee of three to make a report at a subsequent session of the House on the recommendations made therein. The motion was seconded and carried. Dr. Percy appointed as such committee Dr. Pettit, Dr. Black and Dr. Mackey.

## PRESIDENT J. F. PERCY'S ADDRESS TO THE HOUSE OF DELEGATES.\*

*Gentlemen of the House of Delegates:* No more pleasant duty can come to one in my present position than to tell you how much I appreciate the recognition which you gave me when I was chosen your presiding officer for the year which is now soon to end. My duties have given me a peculiar pleasure, and although at times they have been onerous, yet I will leave this Chair with a larger view of my duties and responsibilities toward the great organization which the fathers named "The Illinois State Medical Society."

I regret that it is not within my power to give to you, and through you the county societies which you represent, some adequate view of the needs of the medical profession of this great state as I have learned them, not only this year, but in the years in which I was a member of the Judicial Council. The time at our disposal to-day will permit of no more than a mere mention of some of the things that should be known and considered, not only here, but after you make your report to your county society at its next meeting.

Whether you appreciate it, or not, the county society is the whole thing. Indeed, there is no state organization now. All we have in this meeting at Rockford is a gathering of the representatives of the county societies held together by a constitution that was adopted at one of your previous gatherings. This, then, is merely a meeting of the representatives of the county societies *en masse*. This lays a great responsibility upon the membership of the county organizations. Just in the degree that each member of the county societies posts himself on the needs of the state as a whole, just in that degree will the problems and anxieties of the state officers of the Illinois Medical Society, whom you appoint, be lessened, and just in that degree will measures be brought about to relieve the people and the profession of this state from the burdens under which they live. But we need to do more than to correct mere evils, we must do something in the way of constructive work.

From the standpoint of mere organization, we were never in better condition than at the present time. The medical profession has been slow, very slow, in getting hold of the idea of the absolute necessity for organization. But in this regard a better day is certainly coming. Indeed, it is well on the way. All of our training from the earliest time has been in harmony only with the idea that it was degrading for the members of a profession like ours to mix in matters that were not purely medical. This idea has been taken advantage of by those who would do us hurt, because they have caused too many to listen to the voice of some one who did not want us to interest ourselves in anything outside of the purely technical part of medicine. No better example can be given of the low estate to which our profession has fallen as an organization than the treatment that the State Board of Charities, led by Dr. Frank Billings, received at the hands of the forty-fifth general assembly. Here is one of the leading members of our profession in this country, associated with other high-minded men and women, all giving a large share of their time, without compensation, for the betterment of the charitable institutions of Illinois; and yet these people were practically laughed out of the State House. And as if this were not enough, it is only necessary to remind you of the humiliating figure our profession presented when we were told by this same assembly, in no courteous manner, that no more clinics would be held at Elgin either for our benefit or for the benefit of the patients there confined. It does not help the matter to reply that before adjournment this same legislature did grant much that was asked for by the State Board of Charities, when it is remembered that what they did grant did not come because of any faith in the unselfish motives, or fear of the medical profession of this state, but merely because the storm of protest against existing conditions, through the press, and from the people, was too great to be ignored. Instances might be multiplied at length, showing that when the doctor tries to mix with the politician, the latter always side-steps. In other words, it is evident that the doctor, as a political asset, is rated very low by the politician.

In the way of further evidence along this line, one has not alone to visit Springfield, but Washington as well. This was well illustrated in the House of Representatives a few weeks ago, when an audience was sought with Speaker Cannon in the interests of the Army and Navy Bill. We were listened to, but that was about all. The same treatment was accorded when we appeared before the Army and Navy Committee of the House. If it were any part of the purpose of this address to rail at politicians, no better text would be desired than to relate on this floor the mortifying experiences of the Committee of the A. M. A. with the gentlemen above mentioned.

If anything additional were needed, I might mention the fact of the pitiable object the profession of this state presents as it appears before our legislature at Springfield every two years to make the same old fight against ignorance and superstition. Every two years we have the same work to do over again. Patent Medicines, Christian Science, Osteopathy and Mental Healing—to say nothing of many more 'isms and 'pathys—are recognized in the legislative halls by your representative and mine. That this recognition is rather fulsome is best shown by the vote on the bill to give Osteopathy representation on the State Board of Health. There were seventy votes for, and only seventy-seven against putting two members from the Osteopaths on this Board. Do you know how your representative voted? Do you know how he voted on House Bill No. 66? In section three of this bill, in part are found these words: "Osteopaths when so licensed, shall have the same rights and privileges and be subject to the same laws as physicians from other schools of medical practice." If the medical profession of this state knew their actual standing in an organized capacity before the people as represented in the legislature of this state, to say nothing of any other state, there would be a great stirring of the dry bones in our profession along the lines of organization.

These facts are not mentioned merely in the way of carping criticism, but to bring out and emphasize the fact of the imperative necessity for a change in our methods of getting legislation that is constructive, without so many of the humiliating accompaniments that are true to-day. The present attitude of the public as a mass, the attitude of the newspapers, the attitude of the politicians toward medicine as an organized profession must be due in large measure to some glaring faults of our own in our attempts to improve the practice of medicine. It is up to this society to find out where the trouble is, to make a scientific study of the question, and after this to initiate a movement whereby the altruism of our motives will not be questioned at every turn, and results that can be easily recognized as such be obtained.

We have got to change our attitude toward the public on the question of newspaper advertising. The Irregulars use the press extensively, and they educate the public to the harm of all real scientific advance. We must use the same means to educate the public as to the real aims and objects of all science. We can never have an ally in the press until we give something that will recoup them for the loss of the income from advertising patent medicines which our agitation is depriving them of. The doctor, as an individual never stood higher than at present; but when he attempts to do anything in an organized capacity, I repeat, he is not only looked upon, but treated with suspicion.

The State Society as represented in this House of Delegates, is now a business organization. The position of president is no longer a great honor only. It demands, and will in a larger measure continue to demand, executive ability of the highest order. I have spent forty-four whole days exclusively in the work of this society during my term as president, and could, and should have spent more. The expenses of all my visits except to the following societies I have paid myself: Carroll County very generously paid all my expenses; Adams County paid my hotel bill. This latter fact is also true of Menard, Greene, Jo Daviess, Stephenson, Pike, and one or two other counties of which I failed to keep a record. Other counties instructed me to send in my bill for expenses, but the matter was overlooked. Subtracting what I received as above, my total



expense for the year has been—for railroads, hotels, postage, telegrams, etc.—seven hundred and eighty-seven dollars. This, of course, does not include what I lost in the way of income from my practice during my absence from home. Those who come after me in this office will do more than this both in the sacrifice of money and time from their private interests. Indeed, it is fair to presume that some future president will give one hundred days for the good of this society.

But is it the best for this society, and through it for the profession, that it should continue to expect that its officers will give all that the times demand of time and money, without compensation? It will be impossible; and we should provide for that which is beyond the individual to give. We do not pay enough toward the maintenance of our organization. I was in a county meeting where, after the state dues were provided for, twenty-five cents was assessed against each member for the expense of the county organization. On the other hand, I am told that of the coal miners of Illinois, each one pays twenty dollars a year into the treasury of his organization. In the spirit of what has just been said, we ought to have some method by which this society can have outlined for it a broad and comprehensive policy for future work extending over a series of years. Under present methods we are depending too much on the individual. This House of Delegates will, at this meeting, chose my successor, and the rule has been to choose some one that represents an idea or a plan, with the expectation that before his term ends, he will have accomplished the thing for which he was elected. But in the majority of instances, it is impossible to bring about any radical change, no matter how beneficial it may promise to be for the whole profession, within the short space of a year in office. New officers are then chosen, who bring in new ideas, new hopes and new aspirations, and the previous work, if not lost, must always be hindered. We should have either a committee chosen with great care for this work, or we should have a board of trustees to look after the purely financial affairs of this society, and then turn over to the Judicial Council the important work outlined above. Only in some such way as this can we make our organization influential instead of, as at present, our looking each year for some one individual who may stand for something only during his term of office.

This personal or individual policy has in it another great disadvantage for this society. I can state it best, perhaps, by saying that the best policy from the personal standpoint for any presiding officer to adopt is the "hands off" policy. No man can occupy this Chair for a year and not learn of things that should be corrected for the good of the profession of the whole state. But, if he consults even those who have the best interests of the society at heart, he is too often advised to cry "peace, peace," when he is well aware that it is a false cry. As a result, the profession is left without an advisor or an advocate because he knows that in the short time that he has to remain in office, he will not have time enough to give the profession all the facts, and, as a result, his good intentions may avail but for little more than discord. It would be well, indeed, it must finally come that some plan be adopted whereby the constructive work of the society can be carried on in a consecutive way, month by month, and year by year. In this way the president may become the mouth piece of the society, presenting to them the facts that are now too often suppressed.

It has been my ambition to see a sentiment spread throughout the state in favor of the secretary of the Illinois State Board of Health being appointed by the Governor, on the recommendation of the State Medical Society. Other societies appoint their executive officers in this way, why not the medical profession? The quicker we bring about a vital relationship between the profession as represented in the various departments of the state government at Springfield and the State Medical Society, the better it will be for all concerned. The time will come, but it will come only as soon as the organized profession decides that it is time for it to come, when the secretary of the State Board of Health at Springfield will be the secretary of the state medical society of this state. He will be elected for the appointment of the Governor by the medical societies



of this state. He will also be the editor of the medical journal of the one great medical society; because there is finally to be but one medical society in the state. The day of schools in medicine is gone forever. Combination is the recognized fact of the hour; and its benefits are so patent that to say that physicians will be the only ones that do not recognize it is an insult to the intelligence of the nearly ten thousand legally qualified physicians in Illinois.

When this time comes, we will have a State Board of Health at Springfield that every legislature will look to for advice and direction as to the need of any medical legislation that may be presented. We will not then witness, I repeat, the humiliating show of a great profession being thrown into a panic when the spectacle peddlers of the state knock at the door of the State House with their high sounding Optometry Bill, and are invited by that same legislature to come in. These things must be changed. They can be, first, only by organization among ourselves. This will be followed by the reorganization of the State Board of Health so that it will, without question either from the profession or the legislature, really represent all that is best in medicine in this state.

The salary at present paid to the Secretary of the State Board of Health is utterly inadequate when the importance of the duties is considered. More than this, every member of the State Board of Health should be paid a salary that would somewhere near compensate them for the time that they give in looking after the health affairs of the people. The way we treat the members of our State Board of Health is on a par with what we did in my boyhood days with our village volunteer fire department. What we have in the way of a State Board of Health represents all that was best up to the present, in the way of such a Board; but the times demand more, and if it is not so recognized by this society, a future president will have the humble duty of telling this House of Delegates that the legalized medical profession of Illinois has met defeat at every point because of the successful onslaughts of quackery in every form.

I am no alarmist, but when I look back over the sessions of the last few legislatures that I have attended in the interests of this society, and remember, as I do, the extremely narrow margin only by which this society has been able to prevent this state from being given over to quackery in all forms, I shudder at the thought of the time that will come when legalized medicine will be overwhelmed and swept off its feet. This time is surely coming, and it is not very far distant, unless those who are interested in seeing the degradation of medicine cease their troubling; something there is no present evidence of their doing. It is much easier to get a harmful statute on the books than, once on, to get it off. We are compelled to interest ourselves in a practical way in the work of the Illinois State Board of Health. We must, by every means possible, help its present and future officers to make this organization not only "the medical department of the state government" but also the supreme authority of every scientific medical society in the state.

It is unfortunate that our constitution and by-laws does not contain a provision for an accredited representative of the Illinois State Board of Health to appear on this floor, as a member of the House of Delegates. This would give our society an additional means of knowing what is being accomplished by the State Board, and the influence that it could undoubtedly wield for the upbuilding of the medical profession would be enhanced. In addition to this, some method should be provided whereby a representative of the other schools of medical practice (Physio-Medical, Eclectic and Homeopathic) could send an official representative to the meetings of this society, and our society likewise send a representative to attend the yearly meetings of the above mentioned organizations. We need the coöperation of all legally qualified medical men in the state, especially when it comes to the practical work of the medicolegal committee; and it is fair to presume that they need us.

Another matter is the importance of the interest that this society should take in aiding the Bureau of Medical Legislation of the A. M. A. in molding national legislation of general interest to the medical profession. Dr. C. S.

Bacon, of Chicago, has proven highly efficient as the representative of this society at these meetings. Your president served as the substitute for Dr. Bacon at the meeting last December in the city of Washington. No provision has ever been made by this society for paying the actual expenses of its representative at these meetings. I most earnestly recommend that we not only have such a representative, but that the expenses actually incurred in attending the Legislative Committee of the A. M. A. be paid from our treasury.

It gives me pleasure to report to you the most excellent work during the year of the important committees appointed by you at the Springfield meeting. Among these may especially be mentioned the work of the medicolegal committee. But few of our membership can have any conception of the time and self-sacrificing labor given to this work by this committee, led by its chairman, Dr. W. A. Evans. We have no reason to doubt that the steady and gratifying increase in the membership of this society each month since medicolegal defense has been a part of the benefits of membership has been brought about in great measure by the work of this committee. I would recommend, if it can be made practicable, that the plan of disbarring members of the society who are found guilty of unprofessional conduct be adopted by this committee. If this is not done, the society may find itself in a position where it is compelled to defend a member simply because he has paid his dues to his county society, but who has violated every precept of decency and professional honor.

We can also be proud of our Committee on Medical Education, the active members of which are Drs. Frank P. Norbury of Jacksonville and C. L. Mix of Chicago. Their work has been exhaustive, painstaking and sincere. It has been appreciated by our State Board of Health to the degree that since the work of this committee was completed, the Board has declared five of the medical schools in this state not to be in good standing. I am informed that this has brought about a combination between these schools whereby an attempt is being made through mandamus procedures to compel the Board to rescind its action.

Another of your committees, membership on which is no sinecure, especially for the chairman, Dr. L. C. Taylor, of Springfield, should be mentioned in order that you may know, aside from the formal reports, that after you adjourn these committees continue to work during the interim. I refer to the legislative committee, which has done most efficient service. As much may be said of the committee on Public Policy, through its chairman, Dr. Robert Preble, of Chicago. In fact, this administration of your society has been a working administration; and, as your president, I wish to express my gratitude again not only to you who have given me your moral support and encouragement as I have met you in your county organizations during the past year, but also to my associates in office, for the more than efficient coöperation and support accorded me.

Every county in the state is now organized under the reorganization plan of the A. M. A., Franklin County being the last to come in. In spite of every county being organized, I know of no better investment that this society could make than to employ an official organizer. What Dr. J. N. McCormack has done for the American Medical Association can be duplicated in each state by adopting the same methods. If our funds will not permit of this now, let me suggest that this society employ some one to give as many lectures for the benefit of the profession of the state as is possible for the condition of our treasury to permit. Our members should pay more money into the treasury. I know of no better means by which the profession of this state can aid the officers of this society to do more constructive work than by giving them more money with which to do it. We are cutting out the objectionable advertisements from the columns of the JOURNAL. Over one thousand dollars has thus been lost to the society during the year; this, with what has been done in previous years, makes a great difference in our income. No one regrets it but the advertisers thus excluded, yet the loss—which, after all, is not a loss—must be made up in some other way.

There are other important questions that I should like to discuss in this address, but I have already exceeded the limits set for myself when I began to

write. Among these is the great question of reciprocity in medical licensure between the states. As I have gone about the state I have learned many things that make this question insistent, and the conditions are such that I am sure that the profession will not tolerate much longer what practically amounts to the confinement, whether willingly or not, of a large majority of the practitioners of the state within the borders of their state. As interpreted now, a recent graduate can practically locate anywhere, while the graduate of a few years ago, by the mere accident of having located in a certain state, is compelled to remain there. That this is class legislation, I have no doubt; and that it will finally be remedied along just and equitable lines, I have less doubt.

I would like to refer to the necessity of popular education along the lines of our relationship to the public, as already suggested in this address. The county societies have much to do along this line, and they must appoint as their secretaries, men who can develop this work and these must be encouraged and supported by every individual member. I would like to write more on the management of the county societies, and especially the relationship of the councilors to these organizations, but again time forbids.

Finally, we are citizens of a great state. Within its borders are members of our profession whose names are known wherever the language of medicine is written. You and I are fortunate to know these men, and to feel that they are our colleagues, and that we are members with them of the Illinois State Medical Society. To-morrow evening we will honor two of our members. One of these comes from the city, the other from the country. Both have held up, for you and me to observe, the best ideals of our profession, and we give them the recognition that they have so richly earned. Our state has, to add to its fame, one of the great cities of the world. For a few dollars it will give us anything that our energy or ambition demands in the way of knowledge of scientific medicine or the allied sciences. As progress in life can come only from the development of what is already in us, how much we have to be thankful for that at our very doors we have been supplied with everything that goes to make our professional life satisfying and honorable. The only requirement is that we reach out for it, and make it ours.

We find here in Illinois everything to awaken our enthusiasm, our loyalty, and our patriotism. We hope for greater and better things, from year to year. The ills from which we suffer are small when compared with the brains that we possess to direct their cure. That all ills will be cured in the body politic, we know, and finally this vast state, with its marvelous resources, will be the pride not only of her own citizens, but of the world; for here the sick will receive the best cure, and out of our ranks will come the solution of many of the problems that make medicine what it is as a science.

Dr. Green, chairman of the committee appointed to send a telegram to Governor Deneen, read the message, which was as follows: "The House of Delegates of the Illinois State Medical Society, assembled at Rockford, unanimously adopted a resolution requesting you in behalf of the forty-five hundred Illinois physicians whom it represents, to veto Senate Bill No. 845 establishing a State Board of Optometry." This message was signed by Dr. Percy, President; Dr. Weis, Secretary, and the committee: H. C. Mitchell, T. M. Aderhold, F. R. Green.

Dr. R. B. Preble's report as chairman of the committee on public policy was read and accepted.

#### REPORT OF COMMITTEE ON PUBLIC POLICY.

R. B. PREBLE, M.D., *Chairman.*

Our committee has worked in conjunction with the committee on medical legislation of the Illinois State Medical Society, and in conjunction with the legislative committee of the Chicago Medical Society, and has met with a fair



degree of success in influencing the legislature. There have been, however, two failures, one of which is not yet complete, namely, the passage of the Optometry Bill and the failure of the passage of the Narcotic Bill. Personally I was particularly interested in the Narcotic Bill, which also the men in Chicago regarded as a vital measure and regret that the bill failed of passage, which failure was due to the opposition made largely through the committees representing the druggists.

All other legislation which we favored or opposed, was successful in meeting the fate we desired for it.

Dr. L. C. Taylor, as chairman of the legislative committee, read his report and it was referred to the same committee to which the President's address was referred, on motion by Dr. Bacon.

Dr. Norbury's report as chairman of the committee of education was read and accepted and referred to the committee on publication.

#### REPORT OF COMMITTEE ON MEDICAL EDUCATION.

FRANK P. NORBURY, M.D., *Chairman*.

The growth of medical education in this country is one of the most promising evidences of progress in the science and art of medicine that is before us to-day. Commencing as it did over a quarter of a century ago, in the introduction of the graded system of instruction, it has gradually and successfully added to the curriculum more thorough, more practical and more scientific preliminary training until to-day the four years of required attendance in medical institutions as a pre-requisite to graduation and recognition by State Board of Examiners represents as it should represent, laboratory instruction covering two of these four years and two years of practical instruction along advanced lines of didactic and clinical methods.

This is a great gain over former methods of instruction, but that the need still remains for more systematic, thorough and practical instruction is shown by the survey of ways and means and methods of medical instruction in this country, made by the Council of Medical Education of the American Medical Association. In this survey, which by the way is the most exhaustive, systematic, judicious and fair inquiry ever made in this country regarding the true status of medical education, there is shown the need for a more uniform standard in all that is comprised in medical education, first as regards preliminary requirements, second, the facilities for educational methods in laboratory instruction, in clinical instruction as shown in dispensary and hospital facilities and more careful and prolonged study of the art of medicines. This general need is one that is real and genuine and imperative, and it is timely and becoming that this society, in fact all state medical societies, take up this demand and study local conditions within the states, so that help may be given this great and commendable movement so successfully launched by the American Medical Association.

Your committee, taking this view of its duties, that is, that it should first know the situation in Illinois, before it could expect to make recommendations, visited all of the medical colleges within the state, made a survey of the plant with reference to laboratory, dispensary and hospital facilities; a practical survey of the course of instruction and of requirements for entrance into these schools. We have compiled the data and will present it in the published report.

From our observations made thus far we would recommend to this society first the endorsement of the work of the Council on Medical Education of the American Medical Association, and ask that every member of the society should in his recommendation to prospective medical students urge him to be guided by the reports of this council in regard to his preliminary training. In this way a more learned profession will in the natural order of events be the ultimate result of such training.

Second, your committee feels that the several medical societies of the state



should unite in asking for a closer alliance with the Illinois State Board of Health in order to develop and protect the advancement of medical education.

Third, that this society should recommend the closest supervision of medical education in this state that Illinois may stand among the foremost states of the Union in all that is highest and best in medical education.

FRANK P. NORBURY, Chairman,  
CHARLES L. MIX,  
J. F. PERCY.

Dr. E. W. Weis read the Secretary's report, which was accepted and adopted.

#### REPORT OF SECRETARY.

To the House of Delegates of the Illinois State Medical Society:

Your secretary begs leave to present the following report: The House of Delegates at its last meeting at Springfield levied an assessment of \$2.50 per capita and provided that \$1.50 shall be state dues and \$1.00 shall be for the use of the medicolegal committee, the defense fund.

The council at its June meeting taking into consideration the fact that one half of the fiscal year will have expired before the defense feature could become effective, instructed me to remit 50 cents of this \$1.00 assessed for this purpose. Accordingly I notified the component societies of this fact and collected as the per capita tax, \$2.00 for 1906. The per capita tax for 1907 being for the entire year, is of course \$2.50. Remittances were received from May 1, 1906 to May 1, 1907, from the following component societies in the amounts, to-wit:

Adame .....	\$ 88.50	Lee .....	17.25
Alexander .....	33.00	Madison .....	116.00
Bureau .....	67.50	Morgan .....	.75
Brown .....	19.50	Mason .....	17.50
Boone .....	32.50	Maconpin .....	73.00
Carroll .....	79.50	Marion .....	30.75
Christian .....	157.50	Marshall .....	10.25
Cumberland .....	16.00	Mercer .....	54.00
Clark .....	1.50	Montgomery .....	21.00
Coles .....	80.75	Macon (Decatur Med. Society) ..	128.75
Calhoun .....	2.50	McLean .....	142.50
Cass .....	6.50	Massac .....	36.50
Champaign .....	86.50	McDonough .....	39.50
Crawford .....	45.00	Monroe .....	26.00
Com. of Arrangements, 1906 ..	188.05	Ogle .....	42.00
Clay .....	21.00	Platt .....	20.75
Clinton .....	40.50	Pulaski .....	20.00
Chicago Medical Society .....	3,665.50	Peoria .....	277.25
Douglas .....	64.00	Putnam .....	22.50
Dewitt .....	34.00	Perry .....	3.00
DeKalb .....	136.00	Pike .....	65.25
Edgar .....	42.00	Rock Island .....	34.00
Edwards .....	32.75	Randolph .....	39.50
Edingham .....	106.25	St. Clair .....	178.25
Fox River Valley Medical Association ..	132.00	Sangamon .....	111.00
Fayette .....	13.50	Stephenson .....	90.50
Fulton .....	66.00	Shelby .....	32.50
Franklin .....	27.50	Scott .....	21.00
Grundy .....	13.50	Subscription .....	20.50
Greene .....	52.00	Saline .....	12.00
Gallatin .....	16.00	Tazewell .....	1.50
Henderson .....	17.50	Union .....	7.00
Hamilton .....	1.50	Vermillion .....	149.50
Henry .....	49.50	Wayne .....	34.50
Hardin .....	15.00	Woodford .....	36.00
Hancock .....	56.50	Will .....	71.00
Iroquois-Ford .....	34.50	Washington .....	62.25
Jersey .....	19.00	White .....	22.50
Jefferson .....	1.00	Warren .....	100.50
Jo Daviess .....	13.00	Winnebago .....	44.00
Johnson .....	3.00	Whiteside .....	13.50
Jasper .....	22.50	Williamson .....	1.50
Jackson .....	81.75	Wabash .....	56.50
Kankakee .....	40.50		
Kendall .....	23.50	Total .....	\$8,434.55
Knox .....	85.75	Sent Treasurer Brown .....	6,374.05
Lawrence .....	37.00		
Logan .....	29.00	Total Defense Fund .....	\$2,060.50
Livingston .....	54.00	Returned by error .....	1.00
Lake .....	46.50		
La Salle .....	132.25		\$2,059.50

It gives me great pleasure to be able to report that the membership has made a great stride in the last year. That this is owing in a great measure to the defense feature there can be no doubt, as I have received during that time many inquiries from physicians who otherwise would not desire membership in any medical organization, but because of the benefits received in this particular line they wanted to come into the fold. To the contrary we have lost a few, and these were owing to the fact that they were very old practitioners and did not expect to receive any of this benefit and a few others who opposed the compulsory element in this feature. The total number of new members received during the year is 505.

I am more than pleased to be able to make the statement that at the present time every county in the state has now a medical organization that has been chartered by and is therefore affiliated with the Illinois State Medical Society. There are three hyphenated societies in the state, i.e. Chicago Medical Society for Cook and Dupage, Fox River Valley Medical Association for Kane and McHenry and the Iroquois-Ford, leaving 99 individual component societies.

By the appended report you will notice that 92 of these are in an active state and 7 only that have failed to make a report during the year. Of these I confidently expect, before this meeting is over, to hear from five. There are only two counties and those very small ones, that seem to be in a state of innocuous desuetude.

But with our now increased facility for missionary work and a better understanding of the rights of membership, not only will these societies revive, but many more members will be gathered in by the more active ones.

The last to be and only charter issued during the year to the only remaining unaffiliated county society was to Franklin county.

Your secretary attended each meeting of the council during the year, also the committee meeting which met on January 5, on scientific work. He also attended a meeting in conjunction with other officers of the State Society with the State Board of Health in Chicago. In December last on the invitation of Councilor Smith, he visited Pekin, Tazewell County, and participated in the reorganization of that county society. In February last the president, the councilor of the first district and your secretary met at Rockford with the committee of arrangements. At the last meeting of the Kendall county medical society he visited same on invitation and read a paper on medical defense.

The appended financial report is the best possible indication of the increased activities of the secretary of our component societies. The usefulness of this executive officer depends upon the energy that he gives to society work. As his labor is gratuitous and done for the love of the cause, the present advanced status of our component societies enhances the proof and any commendation of ours would seem to be superfluous. It is my humble opinion and always has been that the healthfulness of a component society depends upon this particular officer, and I point with pride and pleasure, not only to the relationship existing between our members, but also to the fact of the very cordial relationship existing between the secretaries of the component societies and your secretary. This office has not been in receipt of a single complaint during the entire year. This is a marvelous statement when one takes into consideration the enormous amount of necessary correspondence. This society certainly is to be congratulated on having, as active workers, a class of high grade, superior, energetic and evidently ambitious secretaries.

I wish here to make a recommendation and I trust it will be heeded by the component societies and that is, that when they have discovered a good secretary to continue him in office even in spite of his own protest.

I again wish to emphasize the recommendation to those who have not already adopted the same, the desirability of having the fiscal year of the component society conform to that of the State Society, i. e. the calendar year.

Respectfully submitted,

E. W. WEIS, *Secretary.*

OTTAWA, ILL., May 3, 1907.

Your auditing committee, respectfully report that we have found the secretary's accounts accurate and correct.

[Signed.]

J. H. STEALY,  
C. C. HUNT,  
J. W. SMITH.

The meeting adjourned until 4 o'clock in the afternoon.

#### AFTERNOON SESSION.

Meeting was called to order at 4 o'clock by the President. Secretary called the roll and there was a quorum present, being seventy members. The President called for a report of the committee to which the President's address had been referred, and Dr. Pettit gave a verbal report, stating in brief as follows:

"The committee wishes to say that we recommend very heartily the recommendation made in the President's address, and also in the report of the committee of medical legislation which also was referred to us. We think that by following out one recommendation, that of the appointment of a state organizer, all other things will follow. The situation seems to be about this: We have the machinery of organization, but we haven't the organization which is necessary to have an effective working body. The way to do that is to delegate some one to do it and pay them for it, and the committee would recommend that each county society appoint one of its members to act as a member of a committee for this purpose."

It was moved to accept the President's address and place the same on record.

Dr. Bacon moved that the legislative committee be authorized to form an auxiliary committee by appointing one member from each county society as they might deem best, which motion was carried.

Dr. W. A. Evans, chairman of the medico-legal committee, made the following verbal report: "The medicolegal committee hasn't a very formal report to make. We have tried to deal with accurate figures. We have \$1,967.80 in the treasury. The committee perfected the organization this afternoon. The committee was provided for last year, but the machinery was not set in motion, so it became necessary after the adjournment of the Springfield meeting to get in communication with the secretaries of the county societies and request that members be appointed by the different counties. Seventy-eight, I think it is, counties have appointed members of this committee, and twenty-three have failed to appoint any; Cook has appointed three. We sent letters to the counties who have failed to appoint, but with no response. This morning the committee decided to turn over to each councilor names of the counties without committeemen and request him to get after them until members had been appointed. A temporary plan of organization was proposed by the Secretary and President and the three Cook County members. It was proposed that a large committee consisting of one delegate from each county in the state except Cook, which is to have three, be formed, with a small executive committee of five, and that all matters of execution and administration be left in the hands of this executive committee. Field work should be done by members of the medico-legal committee for any par-

ticular county in which a suit was threatened. A favorable vote for this temporary organization was received from every county except one, and that because of the fact that the majority of the committee would be in Cook County. A firm of counseling attorneys was employed at \$1,000 per year. As said in the beginning of my report, we have \$1,967.80 in the treasury, and we think it would be wise to accumulate a fund of a few thousand dollars as a reserve."

It is impossible in a tabular form to give an adequate idea of the business of the committee or how it has been disposed of. Four cases have been settled, and it can be definitely stated that there is no possibility of litigation in these. Four cases have been won in the trial courts after a more or less strenuous legal battle. It can not be definitely said that these are disposed of, as there is still a right of appeal to a higher court. In none of them do we believe such appeal will be prayed, but it can not be affirmed positively until all the time limits have elapsed.

There are on our files 74 items which vary all the way from mere threats to suits; in a few of these the statute of limitations has run, but in the remaining 65 they should be spoken of as pending. To show the society the exact status of every item would require a separate description in each one. They run all the way from mere threats in which no move has been made for many months, to those in which there is a suit in good standing on the trial call of a court of record. The committee are of the belief that the vast majority of these items will never be heard of again, but at the same time it can not be definitely affirmed of any of them until the statute of limitations has run, which is two years after the alleged injury was inflicted. In one case involving the rights of an infant, the statute of limitations extends until two years after this minor becomes of age. Even where the cases have passed beyond the stage of mere threats, and where suits have been begun and they are apparently dead, they may still be revived. For example, in one suit a failure of the plaintiff to file a declaration within the two terms of court required under the statute has entitled the plaintiff to a non-suit. So far as this case is concerned, it is disposed of, though the matter is by no means settled, as the plaintiff can at any time within two years from the time the wrong was inflicted begin a new suit, so that only after the usual limitation has passed can such matter be said to be definitely disposed of.

It was moved to accept and adopt the report of Dr. Evans, and the same was carried. Dr. Evans and his committee were also extended a vote of thanks for their very efficient work.

Dr. Black, chairman of the council, read the report of the council and it was moved and carried to accept and adopt the report as read:

#### REPORT OF THE COUNCIL.

CARL E. BLACK, M.D. *Chairman.*

*Mr. President and Members of the House of Delegates of the Illinois State Medical Society:*

In accordance with Chapter 7, Section 1 of the By-Laws it is the duty of the council, through its chairman, to make an annual report to the House of Delegates. In so far as this report includes reports of officers or committees which report through the council, it covers the period from January 1 to December 31, 1906, inclusive.

#### OFFICERS.

The members of your council this year are as follows: First District, J. H. Stealy, Freeport; Second District, M. L. Harris, Chicago; Third District, C. C. Hunt, Dixon; Fourth District, O. B. Will, Peoria; Fifth District, J. W. Smith, Bloomington; Sixth District, Carl E. Black, Jacksonville; Seventh District, C. Barlow, Robinson; Eighth District, E. E. Fyke, Centralia; Ninth District, H. C. Mitchell, Carbondale. The terms of the councilors from the fourth, fifth and



eighth districts will expire at this meeting and successors will be elected by the House of Delegates.

#### MEETINGS.

During the past year the council has had three regular meetings, one held at the close of the session of the State Society in May, one on June 23, 1907, and the other on Jan. 5, 1907, and one informal meeting, held in April, 1907. The accounts of the editor, treasurer, and assistant editor were gone over and audited at the January meeting.

#### APPEALS.

There have been no appeals or grievances presented to the council during the year. All trouble arising between the members of local societies, or between local societies and the state Society, have been adjusted by members of the council, without appealing to the council as a body.

#### MEDICAL DEFENSE.

The question of medical defense has required considerable explanation on the part of the councilors, and there are still some members unwilling to pay the medical defense fee. Each councilor has made every effort to explain this matter, and as the year has progressed, medical defense has steadily increased in favor. The councilors feel certain that after the report of the medical defense committee showing in detail what has actually been accomplished by medical defense, there will be little further objection. This has in some instances, interfered with the prompt and complete collection of dues by local secretaries.

#### FINANCES.

The following is a summary of the report of the treasurer, presented and audited at the January meeting of the council.

##### RECEIPTS.

On hand, Jan. 1, 1906.....	\$900.50
Chicago Medical Society.....	1,386.00
Advertisements.....	3,400.26
E. W. Weis, Secretary.....	3,639.05
Total .....	\$9,307.81

##### DISBURSEMENTS.

Journal bills .....	\$3,762.42
Discounts .....	39.14
Printing and stationery .....	240.70
G. N. Kreider .....	972.76
F. R. Green .....	460.00
E. W. Weis .....	268.94
Expense .....	21.00
Salaries of Secretary, Treasurer and Editor.....	1,000.00
James A. Rose .....	1.50
Carl E. Black .....	188.15
Council expenses .....	575.81
Bank balance .....	1,777.39
Total .....	\$9,307.81

#### THE JOURNAL.

At the May (1906) meeting of the council, Dr. George Kreider was re-elected editor of the JOURNAL, and Dr. F. R. Green was re-appointed assistant editor. Later Dr. Green's duties in other directions, multiplied and so occupied his time, that in December his resignation was accepted, and Dr. George Edwin Baxter of Chicago, was appointed, and has since performed the duties of assistant editor and advertising manager.

Twelve numbers of the JOURNAL have been issued during the year, with fair regularity, although it has been impossible to make the time of issue as early in the month as desired, on account of the first number of the year being nearly a month late. Each issue has been a little earlier than the one preceeding and during the coming year the JOURNAL will be issued during the first week of each month.

As to style, quantity and quality of material appearing, each member of the affiliated societies has been asked to freely and fully express an opinion. The council has tried to make the JOURNAL attractive and useful, and the chairman of the council has twice addressed each local society secretary, asking that he present the subject of the JOURNAL to his society and get from them an expression of opinion as to its usefulness, its appearance and suggestion of ways in which it could be improved. In this way quite a number of valuable suggestions have come to the council, and some of them have been adopted. In the main, every society which has expressed itself has been pleased with the JOURNAL, and the criticisms have taken the form of suggestions for improvements.

The JOURNAL committee, as well as the council, are only the servants of the State Society, and desire to make the JOURNAL as nearly as possible conform to the wishes of the members.

#### JOURNAL ADVERTISING.

This year the council has taken a very important step regarding the character of the advertisements printed in the JOURNAL. At the January meeting, the rules governing the Council on Pharmacy and Chemistry of the American Medical Association, and followed by the Journal of the American Medical Association in accepting advertising, were adopted as the rules to govern the JOURNAL committee and editors in selecting advertisements for our JOURNAL, and also in accepting exhibits for the annual meeting. These rules are as follows:

(The term article, shall mean any drug, chemical or similar preparation used in the treatment of disease.)

Rule 1. No article shall be admitted unless its active medicinal ingredients and the amounts of such ingredients in a given quantity of the article be furnished for publication. The general composition of the vehicle, its alcoholic percentage, if any, and the identity of other preservatives, if present, must be furnished.

Rule 2. No chemical compound will be admitted unless sufficient information be furnished regarding tests for identity, purity and strength, the rational formula or the structural formula, if known.

Rule 3. No article that is advertised to the public will be admitted, but this rule will not apply to disinfectants and food preparations except when advertised in an objectionable manner.

Rule 4. No article will be admitted whose label, package or circular accompanying the package contains the names of diseases, in the treatment of which the article is indicated. The therapeutic indications, properties and doses may be stated. (This rule does not apply to literature distributed solely to physicians, to advertising in medical journals, or to vaccines and antitoxins.)

Rule 5. No article will be admitted or retained concerning which the manufacturer or his agents make false or misleading statements as to geographical source, raw material from which made, or method of collection or preparation.

Rule 6. No article will be admitted or retained of which the manufacturer or his agents make unwarranted, exaggerated or misleading statements as to therapeutic value.

Rule 7. Labels on articles containing poisonous or potent substances must show the amounts of each of such ingredients in a given quantity of the product. A list of such substances will be prepared.

Rule 8. If the trade name of an article is not sufficiently descriptive of its chemical composition or pharmaceutical character, or is for any other reason objectionable, the council reserves the right to include with the trade name a descriptive title in the book. Articles bearing objectionable suggestive names will be refused consideration.

Rule 9. If the name of an article is registered or the label copyrighted, the data of registration and a copy of protected label should be furnished the council. In case of registration in foreign countries, the name under which the article is registered should be supplied.

Rule 10. If the article is patented—either process or product—the number and date of such patent or patents should be furnished.

The adoption of these rules necessitated the elimination of a large number of advertisements from the JOURNAL, and limits the field from which advertisements can be drawn. For a few years this will of necessity cut down the income of the JOURNAL and a larger proportion of the funds of the society will have to be used for the JOURNAL if its development is to be continued. About six pages were struck out at once and did not appear after the December issue. Later on, on advice of the Council on Pharmacy a page and a half more was eliminated.

Since Illinois has taken this step, several other state journals have done the same and it is expected in the near future that all state journals will fall in line.

The council realizes that the JOURNAL is still far from perfect. Many of its departments need strengthening and some occupy too much space for the good which they accomplish. Material in the way of so-called "Original Articles" is superabundant, while regular reports of the work accomplished by the county units are difficult to secure.

It will require further organization to secure more perfect results. The following is the financial report of editor George N. Kreider.

## RECEIPTS.

June 1, subscription State Board of Charities.....	\$2.00
June 12, H. H. Long, Orion .....	4.00
Sept. 22, from E. J. Brown, Treasurer.....	195.00
Oct. 2, from E. J. Brown, Treasurer.....	45.00
Dec. 31, from E. J. Brown, treasurer.....	120.00
June 16, from E. J. Brown treasurer.....	200.00
	<hr/>
	\$566.00

## DISBURSEMENTS.

June 2, stenographer .....	\$30.00
June 9, postage on Journal .....	27.87
June 12, freight on Journal.....	11.32
June 12, E. W. Weis, subscription.....	2.00
June 30, stenographer .....	24.00
July 7, postage .....	27.95
July 7, freight .....	12.08
July 16, letter heads and envelopes.....	4.25
July 28, stenographer .....	24.00
Aug. 2, stationery .....	2.10
Aug. 11, postage .....	31.81
Aug. 13, freight .....	13.44
Sept. 1, stenographer .....	30.00
Sept. 18, freight .....	11.09
Sept. 19, postage .....	27.18
Sept. 22, stenographer.....	6.00
Oct. 15, postage .....	27.41
Oct. 15, freight .....	10.94
Oct. 20, stenographer .....	24.00
Nov. 3, Ill. State Journal, printing and stationery.....	5.75
Nov. 12, freight .....	10.98
Nov. 13, postage .....	27.67
Nov. 24, stenographer .....	30.00
Dec. 3, postage .....	5.00
Dec. 18, postage .....	29.33
Dec. 18, freight .....	11.46
Dec. 22, stenographer .....	24.00
Dec. 31, Coe Bros., stationery.....	2.30
Dec. 31, interest on overdrafts.....	1.92
Dec. 31, clerk .....	25.00
Dec. 31, stamps .....	8.00
Dec. 31, telephone .....	.40
Expense attending two meetings in Chicago.....	12.00

## SOCIETY HISTORY.

The following paragraphs relating to society history are quoted from the report of the editor of the JOURNAL:

"The fact that the State Society will this year take occasion to pay tribute to two of its members who have been connected with its organization since near its foundation would suggest that a history of the society from its beginning to the present time should be undertaken at this meeting and some one familiar with the founders appointed to write a serial history of the society beginning with its first meeting and using such matter from the printed transactions as will be found of interest.

"It should again be brought to the attention of the society that but one or two complete files of the transactions of the State Society are in existence and that these are not in places where they can be consulted by the members or be preserved permanently. This matter should be taken up and a disposition be made of the volumes in existence."

#### ORGANIZATION.

It is with great pleasure that the council announces that every county in Illinois, either separately or in conjunction with another county, has a medical organization holding a charter from this body, and entitled to representation in this House of Delegates.

At this meeting the council has devoted considerable study to the reports of the county secretaries. While these reports are much better than a year ago or in any other previous year they are still far from satisfactory and from a statistical point of view are valueless. In the future the councilors should urge upon the local societies the great importance of the office of secretary and more care in the selection. Changes in this office should be as infrequent as possible. It is believed that occasional state and district meeting of secretaries will do much to improve and unify this branch of the work.

While each county has a society at least in name, we would not have you understand that your councilors consider the work of organization complete. As yet several of our county units are little more than societies in name, holding meetings annually, semi-annually or quarterly and even then with irregularity. Rather the work is just begun and has only advanced through the preparatory stage. We are now ready to enter upon the solution of some of the real problems for organization. We have built the machine, but so far it has done little work compared with that for which it was designed and some of the cogs have not yet made a single revolution without friction and heat. We believe that the ultimate purpose of a medical organization, whether it is the county unit or the aggregation of thousands of units in the American Medical Association is to give to sick and suffering more rational, scientific and effective treatment and care. To do this we have built a machine with which we hope to help each member to become better informed in the science and art of his calling and more effective in the application of these to the needs of those sick and in distress.

The problems of the future are those of securing harmony of action in our profession; of lifting the individual doctor into a higher regard for his colleagues; of securing greater tolerance among colleagues; of overcoming the lethargy for study, which overtakes most doctors a few years away from college; of discovering and applying a stimulus which will prevent and overcome professional and mental stagnation; of devising practical methods of co-operative study; of converting the local medical society into a group for the study of medicine and surgery throughout the medical career; of developing in the country as well as in the city, doctors who are willing to devote a part of their time and talent to teaching medicine; of developing in each individual doctor a spirit and desire to be taught; of converting every county society into a central school with branches and special groups if necessary which will carry on each year, systematic courses of study; of developing specialists and others who will be willing to go from county to county giving courses of instruction; of securing to the medical profession of the state, county and city the control in sanitary, hygienic and public health departments; of converting each of the hundreds of small hospitals into schools of clinical instruction; of securing qualified and practical health officers for every community who shall devote their whole time to the protection and improvement of the public health; of restoring to the medical profession the proper control of medical practice; of medical education and medical licensure; of securing to the profession defense and security in the pursuit of its proper ministrations on the sick and suffering; of eliminating from the profession of the future the inefficient, incompetent and unscrupulous class which even under the guise of respectability and respectability infest the ranks of our societies to-day. These are a few of the problems of organization which should



be taken up and if possible solved. It is a work not of years but of generations. We have in Illinois, three principal divisions of the problem: first, the great city; second, the towns of from ten thousand to one hundred thousand inhabitants; and, third, the village and the country. Each of these have phases quite different from the other. Most progress has been made in the towns and the most difficult questions arising for immediate solution are those of the great city, and of the remote country districts. How can the professional men of the crowded city with the intense struggle for existence at the bottom and the bitter fight for supremacy at the top be classified, organized and moulded into harmonious and effective groups which will develop each man into a more useful servant of the sick and preserve him from professional failure or degradation? How can the isolated, cast down and over-burdened men of the villages be brought to appreciate and use the advantages of co-operation and learn to give and take help and instruction from each other, and how can organization rescue them from the petty jealousies and narrow outlook of their isolated location? Fearing that some may think our organization is complete, we mention these as a few of the problems of the future.

ROCKFORD, May 22, 1907.

Dr. Evans moved that the Illinois State Medical Society endorse the action of the medical defense in affiliating with Illinois Homeopathic Society and the motion was carried.

On motion of Dr. Bacon it was decided that a committee of three be appointed to draft a telegram urging the governor to sign the bill giving to the University of Illinois the College of Physicians and Surgeons in Chicago. The President appointed as such committee Dr. Bacon, Dr. Smith, and Dr. Brown.

The session adjourned until 8 o'clock Thursday morning.

#### FINAL SESSION—MAY 23.

The House of Delegates was called to order by the President at 8:10 a. m. The Secretary called the roll, and there were twenty-five members present. The Secretary read the minutes of the previous session which, on motion of Dr. Pettit, were approved as read.

Following the approval of the minutes, the election of officers was proceeded with. The following gentlemen were duly elected:

President, Dr. William L. Baum, Chicago.

First Vice-President, Dr. C. W. Lillie, East St. Louis.

Second Vice-President, Dr. T. H. Culhane, Rockford.

Secretary, Dr. E. W. Weis, Ottawa, re-elected.

Treasurer, Dr. E. J. Brown, Decatur, re-elected.

Councilors—Seventh District, Dr. J. Q. Roane, Carlyle; Fourth District, Dr. J. F. Percy, Galesburg; Fifth District, Dr. J. Whitefield Smith, Bloomington.

On motion, a vote of thanks was extended to Dr. O. B. Will for his long and efficient service as Councilor of the Fourth District.

Members of the House of Delegates of the American Medical Association—Dr. Frank Billings, Chicago; Dr. J. R. Hollowbush, Rock Island; Dr. C. S. Bacon, Chicago. Alternate Delegates—Dr. G. D. Smith, Elizabeth; Dr. Chas. B. Horrell, Galesburg; Dr. Robert T. Gilmore, Chicago; Dr. E. B. Montgomery, Quincy; Dr. C. N. Jack, Decatur; Dr. Wm. L. Ballenger, Chicago; Dr. S. C. Stremmel, Macomb.

Dr. J. W. Pettit moved that a per capita tax of \$2.50 be levied on each

county medical society, the same as last year. This motion was seconded and unanimously carried.

Committee on Medical Legislation—Dr. L. C. Taylor, Springfield; Dr. M. S. Marcy, Peoria; Dr. J. B. Fowler, Chicago.

Committee on Public Policy—Dr. Robert B. Preble, Chicago; Dr. Carl E. Black, Jacksonville; Dr. J. W. Pettit, Ottawa.

Committee on Medical Education—Dr. Frank P. Norbury, Jacksonville (three years); Dr. J. F. Percy, Galesburg (one year). [Dr. Charles L. Mix, Chicago, has two years to serve.]

Peoria was selected as the place for holding the next annual meeting.

President Percy stated that there was one report of a committee which had not been brought before the House of Delegates. This was the report of the committee on insurance fees. There was a difference of opinion expressed by the members of this committee as to what this report should be. He therefore suggested that some one make a motion that this matter be referred back to the judicial council, from which it emanated, for final decision and settlement of what the report should be.

Dr. Pettit accordingly made such a motion as was suggested by the President, which was seconded and carried.

Dr. Smith moved that the new organization of Secretaries of County Medical Societies be given a place on the program of next year. The Secretary said that the committee on scientific work would have this matter in charge, and that a motion was hardly necessary.

Dr. Culhane said that it was impossible to make a financial report of money received from the exhibits at this time. Dr. Winn, chairman of the committee on exhibits, had been very busy. He had received a letter from a firm in St. Louis stating that they would have an exhibit at the meeting to-day. All he could say was that Dr. Winn sold twenty-six spaces in the exhibit hall at an approximate cost of \$25.00 apiece, and the committee had taken in in cash in the neighborhood of \$775.00 or \$800.00. What the expenses would be he was unable to say. The committee would like further time in which to make its complete financial report.

The Secretary moved that the chairman of this committee be granted further time to make this report, say two weeks, and when it shall have been completed, it be sent to the Secretary. Carried.

Dr. C. S. Bacon presented the following report of a special committee:

The committee appointed by the House of Delegates of the Illinois Medical Association at Springfield, 1906, to consider the matter of the re-apportionment of the councilors of the society, beg to report that, after numerous conferences with the officers and many members of the society and in consideration of the action of the Chicago delegation taken last week, asking that the question be dropped for the present, it is thought undesirable now to make any changes.

C. S. BACON,  
J. W. PETTIT,  
O. B. WILL.

*Committee.*

## RESOLUTION OF THANKS.

Dr. J. W. Pettit offered the following resolution of thanks:

*Resolved*, that the House of Delegates extends to the City of Rockford, the local profession, and its citizens, a vote of thanks for the magnificent way in which they have entertained the members and guests at this meeting, and for the manner in which they have provided for our comfort and convenience, during this session, and especially for the care that has been taken of the visiting ladies. Seconded and carried unanimously.

On motion, the House of Delegates then adjourned *sine die*.

EDMUND W. WEIS, *Secretary*.

## MINUTES OF SECTION ONE.

*Chairman*—DR. C. W. LILLIE, EAST ST. LOUIS.

*Secretary*—DR. RALPH W. WEBSTER, CHICAGO.

## FIRST SESSION—MAY 21, 1907.

The Section was called to order by the chairman. In a symposium on tuberculosis the following papers were read and discussed jointly:

1. The Early Diagnosis of Pulmonary Tuberculosis, by Dr. Robert H. Babcock, Chicago.
2. Social Aspects of Tuberculosis, by Dr. Henry B. Favill, Chicago.
3. Ocular Tuberculosis, by Dr. Casey A. Wood, Chicago.
4. Some Nervous and Mental Phases of Tuberculosis, by Dr. Frank Parsons Norbury, Jacksonville.
5. The Diagnosis and Treatment of Laryngeal Tuberculosis, Some Unusual Types, by Dr. Wm. E. Casselberry, Chicago.
6. The Management of Tuberculosis, by Dr. Clarence L. Wheaton, Chicago.
7. The Sanatorium Treatment of Tuberculosis, by Dr. E. H. Butterfield, Ottawa.

Discussion on the symposium was opened by Dr. J. W. Pettit, and continued by Drs. Gray, Moyer, Quine, Preble, Ochsner, Brown, Gamble, Marcy, and in closing by Drs. Favill, Wheaton, Babcock, and Norbury.

Dr. James B. Herrick, Chicago, read a paper on Ulcerative Endocarditis, which was discussed by Drs. Babcock, Billings, Ryan, Preble, Sippy, and in closing by the essayist.

Dr. Arthur R. Elliott, Chicago, followed with a paper entitled, Hyperthyroidism. This paper was discussed by Drs. E. J. Brown, Patrick, Favill, Wood, Mettler, and in closing by Dr. Elliott.

Dr. B. W. Sippy, Chicago, read a paper entitled, When Should Gastric Ulcer be Treated Surgically and When Medically? This paper was discussed by Drs. Harris, Robinson, Grinstead, Herrick, Billings, Ochsner, Croftan, and in closing by Dr. Sippy.

Dr. Alfred C. Croftan, Chicago, read a paper on Some of the Newer Points in the Treatment of Nephrolithiasis Urica.

Dr. Ralph W. Webster, Chicago, at this juncture, moved that further discussion on papers be dispensed with, in order to give authors of papers who were present opportunity to read them. Carried.

Dr. Frank Billings, Chicago, then read a paper entitled, *Achylia Gastrica in its Relation to Intestinal Function*.

Dr. Julius Grinker, Chicago, read a paper on *Early Diagnosis and Treatment of Polyneuritis*.

Dr. L. Harrison Mettler, Chicago, followed with a paper on *Hysteria and Neurasthenia; Their Nature and Treatment Contrasted*.

Dr. E. F. Baker, Jacksonville, read a paper on *Septic Tank System*.  
Adjourned.

#### MINUTES OF SECTION TWO.

*Chairman*—DR. EDWARD H. OCHSNER, CHICAGO.

*Secretary*—DR. H. W. CHAPMAN, WHITEHALL.

FIRST SESSION—MAY 22, 1907.

The Section was called to order by the Chairman.

Dr. Archibald Robertson Small, Chicago, read a paper entitled, *Operation for Cystocele*.

Dr. Thomas M. Aderhold, Zeigler, read a paper entitled, *Malaria as a Surgical Complication*. This paper was discussed by Drs. Mitchell, Murphy, Cohenour, Lydston, and in closing by the essayist.

Dr. L. Ryan, Chicago, read a paper on *Progressive Infective Gangrene and Allied Affections*. Discussed by Dr. Lydston.

Dr. John B. Murphy, Chicago, followed with remarks on *Indications for Technic of and Results in Surgery of the Peripheral Nerve*. Discussed by Drs. Ryerson, Simpson, Patrick, Lucas, and in closing by Dr. Murphy.

Dr. Robert T. Gillmore, Chicago, followed with a paper entitled, *The Study of a Case of Puerperal Infection, with Special Reference to its Etiology*. This paper was discussed by Drs. Bacon, Marcy, Paddock, Brown, Hamilton, a member, and the discussion closed by Dr. Gillmore.

Dr. Frank B. Lucas, Peoria, read a paper entitled *Rapid Osteoclasia Versus Osteotomy*. The paper was discussed by Dr. Collins, and in closing by the essayist.

The chairman appointed as nominating committee for officers of the Medical Section, Drs. R. B. Preble, W. F. Grinstead, and J. Whitefield Smith.

Dr. Edwin W. Ryerson, Chicago, read a paper entitled, *Paralysis of the Legs in Children*. This paper was discussed by Drs. Lucas, Mueller, Murphy, Murphy (John B.), and in closing by Dr. Ryerson.

On motion, the Section adjourned until 2 p. m.

#### SECOND SESSION.

The Section was called to order at 2 p. m. by the Chairman.

Dr. Charles H. Mayo of Rochester, Minn., delivered the address in surgery. He selected for his subject, *The Surgical Treatment of Hyperthyroidism or Exophthalmic Goiter*.

Dr. Channing W. Barrett, Chicago, read a paper on *The Treatment of Pelvic Infections, with a Consideration of the Technic of Pus Tube Ope-*



rations. This paper was discussed by Drs. Watkins, Byford, Keyes, and in closing by Dr. Barrett.

Dr. L. R. Ryan, Galesburg, read a paper entitled, Operative Interference in Acute Mastoiditis. This paper was discussed by Drs. Stubbs, Brianza, and in closing by the essayist.

Dr. G. Frank Lydston, Chicago, followed with a paper on Plastic Surgery of the Urethra.

Dr. Clifford U. Collins, Peoria, read a paper on Scopolamin and Morphin as a Preliminary to General Anesthesia. Discussed by Drs. Barrett and Hamilton.

The nominating committee reported that it had nominated the following Section officers: Chairman, Dr. S. E. Munson, Springfield; Secretary, Dr. George Edwin Baxter, Chicago. On motion of Dr. Ryerson the report was adopted.

The nominating committee of the Surgical Section reported the following nominations: Chairman, Dr. E. Wyllys Andrews, Chicago; Secretary, Dr. W. B. Helm, Rockford. On motion, the report of the committee was adopted.

Dr. W. S. Royce, Chicago, read a paper on Treatment of Varicose Veins and Ulcers of the Legs.

Dr. Frederick Mueller, Chicago, read a paper entitled A New Modification of the Primary Position in the Bloodless Treatment of Congenital Hip Dislocations. This paper was discussed by Dr. Ryerson, and in closing by the essayist.

Dr. J. E. Allaben, Rockford, read a paper on Report of Three Unusual Cases in Gall-Bladder Surgery.

Dr. M. R. Barker, Chicago, followed with a paper entitled Post-Operative Gall-Bladder and Gall-Duct Fistulae. Discussed by Drs. Kreider, Ochsner, Allaben, and Barker.

Dr. F. K. Sibley, Peoria, read a paper on Otitic Brain Abscesses. Adjourned.

## MINUTES OF JOINT SESSION OF SECTIONS.

### *BORDERLINE CASES.*

*Chairman*—Dr. C. W. LILLIE, EAST ST. LOUIS.

*Secretary*—Dr. H. W. CHAPMAN, WHITEHALL.

### FIRST SESSION—MAY 23, 1907.

The Section was called to order by the Chairman.

Dr. Denslow Lewis, Chicago, read a paper entitled Practical Venereal Prophylaxis, which was discussed by Drs. Simpson, Ochsner, Maley, Allaben, Adles, and in closing by the essayist.

Dr. E. C. Franing, Galesburg, read a paper entitled Indications for Cesarean Section. This paper was discussed by Drs. Lewis and Maley.

Dr. Edwin M. Minnick, Moline, read a paper entitled, Emesis During the Period of Gestation. This paper was discussed by Dr. Bertha Van Hoosen, and in closing by the essayist.

Dr. John C. Hollister, Chicago, read a paper entitled, Laboratory

Technic of Estimating the Opsonic Index as a Basis for Vaccine Therapy.

Dr. David Lockie, Pontiac, followed with a paper entitled, A Report of Two Unusual Cases. These two papers were discussed jointly. The discussion was opened by Dr. L. L. McArthur, and continued by Drs. Simpson, Wilder, Watkins, Ochsner, and the discussion closed by Dr. Hollister.

Dr. Frank Hugh Montgomery, Chicago, read a paper entitled Facititious Dermatitis Occurring in Hysterical and Neurotic Individuals.

Dr. O. M. Steffenson, Chicago, read a paper entitled, Symptomatology and Diagnosis of Exophthalmic Goiter.

Dr. Aimé P. Heineck, Chicago, followed with a paper entitled Exophthalmic Goiter, with Especial Reference to the Surgical Treatment.

Dr. C. T. Robinson, Edwardsville, read a paper entitled, Interstate Medical Reciprocity and Our Degraded Certificate. This paper was discussed by Dr. James A. Egan, after which the meeting adjourned *sine die*.

# ILLINOIS MEDICAL JOURNAL

THE OFFICIAL ORGAN OF THE ILLINOIS STATE MEDICAL SOCIETY.

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JULY, 1907.

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## DEFECTIVE MEDICAL EDUCATION IN AMERICA.

At the recent meeting of the Council on Medical Education of the American Medical Association, held in Chicago, certain remarks by one of its members regarding the courses given by American medical colleges found their way into the columns of the daily press and excited wide comment. Some of the startling statements made were that American medical colleges graduate every year 4,000 doctors who are incompetent and should not be permitted to practice medicine. Secondly, the opinion among the members of the Council seemed to be unanimous that there is something wrong and that matters should be changed to give better results.

Some of our members have been inclined to condemn the speaker for making such statements, and undoubtedly they are broader than the facts would warrant. It is nevertheless true, as far as the state of Illinois is concerned, that a large number of incompetents have been given license to practice in the last ten years and a laxity in the supervision of poor medical schools has prevailed during this time.

A gentleman quite competent to judge, who has come in contact with many of the younger medical men in the state, has expressed his surprise at the incompetency of these practitioners.

The Committee on Medical Education appointed by our state society,

we understand, has found a disgraceful state of affairs prevailing in certain alleged medical colleges. Some of them have been found to be little more than quiz classes, organized for the purpose of preparing students to pass state board examinations, and having no equipment sufficient to give a medical education. We boast of our large and splendidly-equipped medical colleges in Chicago, but it can not be too well understood that alongside of these splendid institutions there are others with little or no equipment or teaching facilities that have the power of granting diplomas and of securing licenses for their graduates on a par with the good schools. We feel sure that this condition of affairs will not last long, but as long as it does exist many of the harsh criticisms entered against the medical schools and incompetent graduates of to-day must stand uncontradicted.

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### MEDICAL EDUCATION IN THE STATE OF MISSOURI.

The meetings of the Missouri State Medical Association are always interesting and often enlightening to the medical profession. This is particularly true of the profession in Illinois because of the fact that the metropolis of Missouri is the medical center for a large portion of our state and a large number of our practitioners graduated from St. Louis schools. The first gun in the present active warfare against proprietary and patent medicine frauds was fired in 1904 by Dr. W. G. Moore of St. Louis in his presidential address before the Missouri state society. Dr. Moore, because of his place of residence, had ample opportunity to observe the crimes committed by certain unscrupulous men, both inside and outside of the profession, in the exploiting of patented and proprietary medicines. The reform started by Dr. Moore rapidly spread to the entire country, and the results will finally be that these frauds will be wiped from the face of the earth.

At the last meeting of the Missouri state society, held at Jefferson City in May, 1907, a great deal of attention was paid to the character of the medical schools existing in Missouri. The president, Dr. C. H. Wallace of St. Joseph, Mo., said:

"A few words concerning some of the evils present in our state which demand our attention and our united efforts for betterment.

"It is the general opinion that many good reasons now exist for a limitation in both numbers and quality of the annual medical output both in our state and all western states. This needed limitation of medical graduates can come only in the reduction in number or an improvement in the character of our medical colleges.

"The recent affiliation of two of the commercial schools of Missouri with universities is of good omen and was hailed with approval and delight by the better medical element all over our state. With this university espionage immediately came a high requirement for admission, a lessened matriculation and a better equipment of those graduated.

"Other university alliances are in process of formation, and with their culmination we dare to predict the death knell of the commercial



medical school which has for so many years put a price on ignorance and flooded our ranks with incompetents.

"These commercial schools are born of self-interest, perpetuated by a selfish and inordinate desire on the part of the teachers to make an impression upon the student of their individual greatness, rather than to propound and to impart the great fundamental truths of our science.

"These student hunters entice the barber from his chair, the mechanic from his bench and the huckster from his wagon, all with imperfect educations, and push them by roseate pictures into the field of medicine. What can such conditions bring forth but imperfectly-feathered fledglings who flutter along the marshes and never rise to the dignified heights of the real physician. It is from this class that come our medical anarchists who seek to tear down all efforts toward progression. It is from this class that come our tyros who rush in where angels fear to tread and call down the reproach of the public upon the science of surgery. It is from this class that come our abortionists who have never been taught the great moral side of medicine.

"Who is at fault for this condition of affairs? Certainly not the youth who has been badly advised, ill taught and imperfectly manned. The commercial school has the double iniquitous effect of spoiling much good material that under proper educational surroundings would make capable and useful physicians as well as bringing to the surface much débris that would have otherwise remained hidden in the current of life."

The matter was further pursued by Dr. W. F. Kuhn, the orator on medicine, who made the following remarks:

"The only serious defect in the educational qualification act passed by the Forty-fourth General Assembly is the clause: 'Or a certificate from the County School Commissioner certifying that they have passed satisfactorily an examination equivalent to a grade from an accredited high school.' If some county commissioners or examiners were not a purchasable commodity all would be well. For I well remember when a medical college in our state purchased teachers' certificates at \$3.00 per head for its freshman class.

"The greatest hindrance to scientific medicine, now happily lessening, has been the character of our medical colleges in the west. Not only have they been false to a great science, but they have betrayed the young man who came honestly seeking. 'He asked for bread and they gave him a stone.'

"If the officers and the self-dubbed professors of these so-called medical colleges were called upon to-night to render an account at the Great White Throne for the lies told in their annual announcements, what a wailing there might be, exclaiming, even here this evening, 'How can we escape so great a damnation'?

"As a matter of protection an Association of American Medical Colleges was formed. This caused the annual announcements to lie even harder and longer than before. Some claim to give a complete two years' course in all the collateral sciences, when they had in their laboratory but one microscope, a Bunsen burner and half a dozen test-tubes. Is

it any wonder that the Goddess of Medicine wept bitter tears of Lydia Pinkham's Compound into a pot of antiphlogistine?

"Then you and I and all of us fell down, while soothing liquozone flowed over us.

"With the continued advance of educational qualifications the doom of the proprietary medical colleges is written. When the requirements shall rise to a collegiate or university standard, the chief hindrance to medical progress will have been removed.

"The plea that a higher educational qualification will shut out many a worthy young man is as absurd as to say that the physical requirements to enter West Point shuts out many worthy young men from becoming Major General, or the long and difficult course of study prevents some one from becoming a competent civil engineer.

"Why is this senseless clatter raised only in our own profession? The most difficult, requiring the greatest painstaking and the most scientific research of them all. Dean Swift has tersely stated that 'tubs should stand on their own bottoms'."

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#### THE NEW YORK STATE HOSPITAL FOR THE CARE OF CRIPPLES AND DEFORMED CHILDREN.

We are in receipt of the sixth annual report of the above named institution located at West Haverstraw, a short distance out of New York City, of which Newton M. Shaffer is surgeon in chief, with three assistant surgeons and twenty-one consulting physicians and surgeons, a staff certainly large enough to accommodate the inmates of the hospital. Besides these officers we find there is a resident physician and assistant superintendent, a matron, a stenographer, a teacher, four trained nurses and a bookkeeper.

Since the hospital was opened December 7, 1900, there have been admitted all told sixty-five patients. A building, evidently a former residence, of good dimensions is now used for hospital purposes, but, as is usual in institutions of this sort, the superintendent makes a pathetic plea for an appropriation for a large hospital building.

Of the sixty-five patients treated, 60 per cent. of them had some form of tuberculous joint disease and 50 per cent. had hip joint disease; 50 per cent had knee joint and 35 per cent. spinal disease, leaving about 40 per cent. (twenty-five individuals) with club-foot, bow legs, infantile paralysis, etc.

Our object in bringing out these facts is to show that nearly every one of these cases could be and are successfully treated in the general hospitals, and that in such a thickly-populated state as New York in six years there has been hardly an average of twelve patients per year admitted to this institution. It would seem from this that the call for a separate institution of this sort in the state of New York was largely overestimated, and that the appropriation of \$60,000 by the last legislature of Illinois for a similar institution was a mistake, which was very properly corrected by the veto of Governor Deneen after its adjournment.

## THE LATE JOHN T. HODGEN, LL.D., M.D., OF ST. LOUIS, MO.

On April 28, 1907, at the Y. M. C. A. hall, Grand and Franklin avenues, St. Louis, Mo., was held a meeting in commemoration of the twenty-fifth anniversary of the death of Dr. John T. Hodgen. It is not given to many men to impress their lives upon a community so deeply that a quarter of a century after they have passed away a meeting to express the admiration and affection of their colleagues and fellow-citizens should be held. A great honor was, therefore, bestowed upon the memory of a good man when such a meeting was recently held in St. Louis. Americans remember the birthdays of Washington, of Lincoln and of Grant, but none of them were more worthy of place in their larger spheres of influence than was John T. Hodgen in his more restricted circle. Born in Hodgenville, LaRue County, Ky., not far from the birthplace of Abraham Lincoln, his parents early removed to Pittsfield, Pike County, Ill., where he attended the common schools and later graduated as a doctor of medicine in St. Louis at the age of 22 in the spring of 1848. That city was afterward his residence until his death at the early age of 56. Great things were predicted of him while yet a student, and he so fulfilled every promise that at his funeral the Rev. Dr. W. G. Elliott said:

"We have lost our first citizen. In mind and heart and soul—in science, intellect and work—in the vastness, self-sacrificing, and the importance of his labor for mankind, there was none to stand before him."

Small wonder then that the memory of such a man should survive a period of twenty-five years and that tributes be brought from those who knew him during life and be expressed at the memorial meeting by such men as Drs. Joseph M. Mathews, of Louisville, Ky.; Warren B. Outen, of St. Louis; Charles H. Wallace, of St. Joseph, Mo.; H. C. Fairbrother, of East St. Louis, Ill., and Le Grand Atwood, of Ferguson, Mo., who knew him as a teacher and as a colleague, and that his worth as a citizen should be praised by the Hon. Charles Nagle, of the St. Louis bar. Space forbids our going into the details of this meeting or of reproducing the appreciations uttered at this time. Suffice to say that Illinois is proud that this state had something to do with the formation of such a character as that of John T. Hodgen and glad that a practitioner of Illinois, Dr. H. C. Fairbrother, should have been among those chosen to pay a tribute of respect to his memory.

The life of John T. Hodgen should be an inspiration to every honest, earnest practitioner of medicine, for the memory of such a life may not perish from the earth.

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### Correspondence.

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#### RECIPROCITY IN MEDICAL LICENSES.

*To the Editor:*—Will you kindly grant me space in THE JOURNAL for a few remarks in continuation of my paper on "Facts and Fallacies Concerning Interstate Reciprocity in Medical Licensure," read at the

1906 meeting of the State Medical Society, and published in *THE JOURNAL* for March, 1907?

As will be noted by the careful reader, I took occasion, in this paper, to not only lay before the members of the State Medical Society the methods of reciprocity carried out by the Illinois State Board of Health, but also to present other methods that could be put in effect in Illinois through a slight amendment to the present law. And it is of these methods that I wish to speak here.

In 1902 the State Board of Medical Registration in Medicine of Michigan became dissatisfied with the methods of the National Confederation of State Medical Examining and Licensing Boards, and, with the assistance of the State Board of Medical Examiners of Wisconsin and the State Board of Medical Registration and Examination of Indiana, created and established the "American Confederation of Reciprocating, Examining and Licensing Medical Boards." The sole purpose of this newly created organization seemed to bring about between states reciprocity on the basis of licenses issued on diplomas and without examination.

The "American Confederation" adopted a "qualification" for reciprocity, reading as follows:

#### QUALIFICATION II.

"A certificate of registration, or license issued by the proper board of any state, may be accepted as evidence of qualification for reciprocal registration in any other state, provided the holder of such certificate has been engaged in the reputable practice of medicine in such state at least one year, and also provided that the holder thereof was, at the time of such registration, the legal possessor of a diploma issued by a medical college in good standing in the state in which reciprocal registration is sought, and that the date of such diploma was prior to the legal requirement of the examination test in such state."

Obviously this "qualification" did not meet with the approval of the Illinois State Board of Health, which operated under the provisions of an examination law that had been placed on the statutes at the instance of the organized medical profession of Illinois—a law that contemplated the examination of every person desiring to begin the practice of medicine in the State of Illinois.

If the Illinois State Board of Health had adopted this "qualification"—assuming that it had power to do so—the board would be obliged to license, without examination, any reputable physician coming from a state with which the Illinois board sustained reciprocal relations, who had been graduated by an approved college prior to July 1, 1899, and had received a license, without examination, on his diploma. While not approving of this form of reciprocity, which was being so insistently urged upon the Illinois State Board of Health by physicians in other states, and while of the opinion that the members of the State Medical Society did not favor it, I desired to act in all fairness and consequently I referred at length to Qualification II in my paper, and said:

"If the members of the Illinois State Medical Society favor this form



of reciprocity, the members of the Illinois State Board of Health wish to be advised of the fact, in order that they may properly govern themselves. The reciprocity desired by the members of the medical profession in Illinois is the form of reciprocity that will be advocated and enforced, when possible, by the State Board of Health."

That I would read a paper on reciprocity at the Springfield meeting must have been known to practically every member of the State Medical Society. The paper was announced in the program published in the April number of *THE ILLINOIS MEDICAL JOURNAL*, which, it is but fair to assume, was read by every member. Be that as it may, it is certain that every one of the seven hundred members present at Springfield on May 15-17 knew that I would read a paper on this much-discussed subject, and it is natural to assume that each and every member who gave the matter a second thought realized that in this paper I would dwell in detail upon the manner in which reciprocity is administered by the State Board of Health and would explain the Board's attitude toward the physicians of other states. It is also a reasonable assumption that every member appreciated that it would be his privilege to participate in the discussion of the paper and, if he so desired, to take exception to the opinions and to criticize the attitude of the essayist and the organization which he represented.

The paper was discussed by four physicians, not one of whom made the slightest adverse criticism of the manner in which reciprocity is carried out by the State Board of Health. The sentiments expressed by those who discussed the paper and the absence of comment on the part of others present served to convince the State Board of Health that the members of the State Medical Society were entirely satisfied with the action taken by the Board in the matter of interstate reciprocity.

But in order that every member—those who were detained at home as well as those who attended the Springfield meeting—might be thoroughly conversant with the attitude of the State Board of Health, an extract from the paper was published in the monthly *Bulletin* of the State Board of Health, which is sent to every member of the State Medical Society, as well as to other physicians, and the members were requested to favor the State Board of Health with their views, if not in harmony with the present policy of the Board in the matter of reciprocity. In addition to this a postal card calling attention to the extract and citing the page of the August *Bulletin* on which it might be found, was also sent to the members.

Less than a score of the members of the State Medical Society made known their disapproval of the attitude of the State Board of Health in the matter of reciprocity. Naturally the State Board of Health became satisfied that the great majority of the members of the State Medical Society approved of the manner in which interstate licensure was carried out by the Board, and appreciated that the Board dealt with the old practitioner of other states liberally and fairly, in a way which has received the highest approval of the medical profession and the medical

press, and by a method which has recently been adopted by boards of other states.

At a conference between the State Board of Health and officers of the Illinois State Medical Society, the Illinois Homeopathic Medical Society, the Illinois State Eclectic Society and the Illinois Physio-Medical Society, held in Chicago on April 5, several committees were appointed to consider subjects for discussion. Among these committees was one on reciprocity (see *THE JOURNAL* for April). This committee made the following report at the meeting held on April 24:

First.—After investigation, the committee wishes to express its hearty approval of the work of the Illinois Board in promoting better reciprocal relations between states.

Second.—We believe the plan of the Illinois Board in giving credit to the old practitioner for years of practice is an eminently just and fair one, minimizing, as it does, the inconvenience to older practitioners.

Third.—We believe that under the present law the Board can take no other position regarding the licensing of practitioners from other states.

Fourth.—We believe that still better reciprocal relations between Illinois and other states would be possible if the present law could be amended so as to allow the Board at its discretion to grant licenses, without examination, to practitioners from other states who were in practice before the adoption of the present medical practice act in Illinois.

The conference approved the first three sections of the report. After a lengthy discussion, which was participated in by every physician present, the conference, by a unanimous vote, rejected the proposed amendment to the law.

It may be, as insisted by physicians of other states who are so peculiarly solicitous regarding the welfare of Illinois physicians, and by an inconsiderable number of physicians of the state of Illinois, that it is the desire of the medical profession of Illinois that the State Board of Health should license, without examination, physicians of other states who were graduated prior to July 1, 1899, and who were licensed without examination, merely on the presentation of their diplomas; if so, however, it is, indeed, remarkable that the members of the medical profession of Illinois do not express this desire through the state societies with which they are affiliated, or through the official organs of these state societies, or in some way reveal their position to those who are sincerely desirous of ascertaining their views.

JAMES A. EGAN.

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DETROIT, MICH., June 1, 1907.

*Editor of Illinois Medical Journal:*—My attention has only at this time been directed to a letter by Dr. James A. Egan, published in the May number of *THE JOURNAL*, and purporting to be a continuation of his paper on "Facts and Fallacies Concerning Interstate Medical Reciprocity and Medical Licensure," published in *THE JOURNAL* for March, 1907.

In your April edition I called attention to Dr. Egan's seemingly deliberate misstatement of facts in the original article in relation to his comment on qualification No. II of the American Confederation, and which provides a method by which the older practitioner may participate in the benefits of medical reciprocity. This second letter of Dr. Egan's is characteristic; he simply—for discretionary reasons only—avoids the direct and specific charge of wilfully and knowingly publishing a misstatement of facts and, in order to cloud the issue, attempts to ignore my letter and at the same time endeavors to cover up his retreat by an amended criticism of qualification No. II, but makes further statements in regard to it and which constitute an additional wilful misstatement of fact. Here are his two statements concerning qualification No. II:

#### MARCH STATEMENT.

"The adoption of such a qualification would mean that the Illinois State Board of Health would be compelled to license without an examination the holder of a diploma from a seemingly reputable medical college who obtained his license in any other state previous to 1899, on the presentation of a diploma, when the license was his for the asking."

#### MAY STATEMENT.

"If the Illinois State Board of Health had adopted this qualification, the board would be obliged to license without examination any reputable physician coming from a state with which the Illinois board sustained reciprocal relations, who had been graduated by an approved college prior to July, 1899, and had received a license without examination on his diploma."

If the latter statement is correct, then is Dr. Egan's former statement either a fair or an honest one? And yet, upon the basis of his former statement, he endeavored to get an intelligent and impartial opinion covering qualification No. II from his licentiates, and bases his reasons for refusing the older practitioners their rights upon this opinion so retained.

Then, again, in his May statement, occurs the following:

"In 1902 the State Board of Medical Registration in Medicine in Michigan\* became dissatisfied with the methods of the National Confederation of State Medical Examining and Licensing Boards, and, with the assistance of the State Board of Medical Examiners of Wisconsin and the State Board of Medical Registration and Examination of Indiana, created and established the 'American Confederation of Reciprocating, Examining and Licensing Medical Boards.' The sole purpose of this newly created organization seemed to be to bring about between states reciprocity on the basis of licenses issued on diplomas and without examination."

I need hardly characterize the above statement as an absolute perversion of facts, as far as his statement is concerned that "the sole purpose

\* A board which three years previously was not in existence.

of this newly created organization seemed to be to bring about between states reciprocity on the basis of licenses issued on diplomas and without examination."

The Michigan Board, upon request to send representatives to the National Confederation, looked up the constitution of this organization and its history. This developed the fact that the National Confederation's membership was composed of members of state boards, educators and others interested in board work, and was not and could not be in any sense an executive body. Its history also disclosed the fact that in its ten years' existence it had accomplished nothing, either in the matter of practical medical reciprocity or in the matter of adopting either standards of preliminary or medical education, its principal work having been along the lines of developing the theory that medical reciprocity was an impossibility and that uniformity of standards in the several states was impracticable. The Michigan Board, therefore, concluded that it could receive no benefit from uniting with an association of this character, and at once took up the subject of a national association having at least semi-executive authority and covering the ground necessary in order to produce practical results in the matter of reciprocity and uniformity of state requirements. The outcome of this was the formation of the American Confederation, the membership of which was composed of and limited to state medical boards—not *members* of state medical boards. Its first membership consisted of Indiana, Wisconsin and Michigan. To-day it has a membership of some twenty states, and thirty-one states are actually reciprocating under its qualifications which it adopted at its first meeting.

Qualification No. I includes those licentiates having the qualifications of a recognized diploma and state board examination; qualification No. II having the qualification of a reputable medical college diploma and license in a state prior to the requirement of the dual qualifications, i. e., a reputable diploma and State Board examination.

Since the inauguration of the American Confederation some 2,000 state licenses have been endorsed through reciprocity, approximately 1,735 under qualification No. I and 265 under qualification No. II.

These facts hardly bear out Dr. Egan's statement that the object of the American Confederation was to bring about reciprocity on the basis of medical licenses issued on diplomas and without examination. It is simply a gratuitous statement on Dr. Egan's part, without a scintilla of fact to warrant it, but it shows very clearly Dr. Egan's prejudice in the matter of qualification No. II and his unfair methods in opposing it.

Now, I myself as executive officer of the American Confederation, or the members of the Confederation, have no objection whatever to anyone in opposition to qualification No. II stating these objections publicly and using all fair methods in opposition to it, but we certainly object to the methods thought necessary by Dr. Egan, and it is unnecessary for me to refer specifically to them, as they are plainly demonstrated in his published statements, and which I call attention to in this communication.



The American Confederation, in addition to establishing practical reciprocity throughout the United States, has also adopted standards and methods of preliminary and medical education, and exactly similar standards and methods have likewise been adopted by the Association of American Medical Colleges, and these standards are also being adopted by those states not in membership with the Confederation, as well as by states who have not adopted a policy of reciprocity. The only practical thing accomplished thus far by the National Confederation was the adoption of a preliminary standard and method in 1904, this same method and standard having been in operation in Michigan since 1900, only under an approved form.

Dr. Egan, in his reference to the Michigan Board, calls attention, in a note, to the fact that in 1902 this board had not been in existence three years previously. This is not the first time that he has made the statement, and I can not see any point in the matter, unless it is an advantage for a board to have several years' existence prior to its doing any practical work. If this is a virtue I will willingly retire in favor of Dr. Egan's board, and I think he can make good its claim along this line, as it has only very recently—within the last few weeks—obtained legislation covering preliminary education equal to that in force in Michigan for a number of years and also legislation permitting of reciprocity. And yet I wonder at the necessity of such legislation in Illinois, or the legislation necessary in recognizing the medical commissions of the United States Army and Navy and Marine-Hospital Service, from the fact that the Illinois Board some time ago took upon itself the rights of legislative action and reciprocated and recognized commissions prior to such legislative action. Nevertheless, Dr. Egan lays great stress upon the fact that Illinois could not recognize and reciprocate under qualification No. II from the fact that *the law of Illinois did not provide for it*. In the matter of living up to the statutes Dr. Egan has placed himself on record as sometimes "blowing hot" and at other times "blowing cold." If it suited his individual purpose the requirements of the law became very impressive; if, on the other hand, it did not suit his purpose, the actual requirements of the law gave place to the "general powers" of his board.

I have no personal quarrel with Dr. Egan or his Illinois Board, and as far as my own state (Michigan) is concerned, my relations with the Illinois Board are upon a very satisfactory plane, but from the standpoint of the American Confederation and reciprocity, I certainly object and protest against the methods of Dr. Egan and his board relative to the national subject of medical reciprocity and standards. In so far as the Illinois Board of Health accepting qualification No. II and operating under it, it is immaterial to the American Confederation. It, however, reserves the right to enter an emphatic protest against any misrepresentation of its methods and accomplishments, either by Dr. Egan or by any other aggressive secretary of a board. B. H. HARRISON,

*Secretary American Confederation of Reciprocating,  
Examining and Licensing Medical Boards.*

## COUNTY AND DISTRICT SOCIETIES

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### ÆSCULAPIAN SOCIETY OF THE WABASH VALLEY.

The sixtieth semi-annual meeting of the Æsculapian Society of the Wabash Valley was held at Champaign, Ill., May 9, 1907. The society was called to order at 10:30 a. m., by the president, Dr. Charles B. Johnson. After the invocation by Rev. E. W. Clippenger, and address of welcome by Mayor Blain, with response by Dr. H. I. McNeill, the following papers were read: Obstetrical Work, Dr. W. S. Jones, Redmon, Ill.; Child Labor from a Medical Standpoint, Dr. W. F. Burres, Urbana, Ill.; Crushing Injuries of the Abdomen, Dr. S. W. Shurtz, Champaign, Ill.; Therapeutic Abortion and the Induction of Premature Labor, Dr. T. N. Rafferty, Robinson, Ill.; Infection of the Gall Bladder, Dr. M. R. Combs, Terre Haute, Ind.; The Status of the Physician as an Expert Witness, Dr. James L. Reat, Tuscola, Ill.; Ophthalmia Neonatorum, Dr. C. B. Voight, Mattoon, Ill.

The Board of Censors reported favorably on the following applications and they were elected to membership: Dr. J. H. Cook, Terre Haute, Ind.; Dr. Theodore Reagan, Danville, Ill.; Dr. W. L. Smith, Toledo, Ill.; Dr. Nettie Austin Murphy, Paris, Ill.; Dr. H. J. Pierce, Cloverland, Ind.; Dr. J. H. Bush, Charleston, Ill.; Dr. O. W. Allison, Catlin, Ill.; Dr. Rudolph Gillium, Terre Haute, Ind. During the meeting the following applications for membership were received and read, to be reported on by the Board of Censors at the next annual meeting: Dr. J. W. Osborne, Champaign; C. D. Guliek, Urbana; J. L. Funkhouser, Chrisman; H. L. Smith, Ivesdale; R. L. Jessee, Philo; H. V. Wilson, Champaign; O. W. Michael, Muncie, Ill.

At 5 p. m. the society made a visit to the State University under the direction of Professor Burrill. At 6:30 the members were entertained at dinner by the Champaign County Medical Society, which achieved quite an enviable reputation as a gracious host. The society adjourned at a late hour, to meet at Paris, Ill., in October, 1907, the occasion of the sixty-first annual meeting.

Those Æsculapians who were present at the testimonial banquet given Drs. Hollister and Ensign by the Illinois State Medical Society at its recent meeting at Rockford, were gratified to hear Dr. Ensign very properly give the Æsculapian Society of the Wabash Valley the distinction of being the oldest medical organization in existence in the State of Illinois, which really makes it the oldest west of the Allegheny Mountains.

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### ADAMS COUNTY.

The monthly meeting of the Adams County Medical Society was held May 13th, in the Elks' club rooms, Quincy, with President, Dr. J. H. Rice, and acting secretary, Dr. T. B. Knox, in their respective places. Members present were: Drs. Robbins, Gilliland, Christie, Jr., Shawgo, J. B., and Kirk, W. W. Williams, J. G. Knapheide, Mercer, Knapp, Meyer, Pfeiffer, Zimmermann, Montgomery, Blickhan, Lierle, Ericson, Koeh, Nickerson, Spence, Center, Grimes, Bates, Garner, Schullian, Worley, Ashton, Becker, Kidd, Werner, Brenner and Wells. Visitors present: Dr. D. N. Eisendrath, Chicago; Dr. Haxel, Fowler, Ill.; Dr. McComas, New Canton, Ill.; Dr. Brewington, Bevier, Mo.; and Drs. Richardson and Toole, Quincy, Ill.

The committee having the matter in charge reported the appointment of Drs. J. H. Rice and E. B. Montgomery by Mayor Best to places on the Board of Health. This is the first recognition the profession of Quincy has received for years, so far as the Board of Health is concerned. Dr. Ralph T. Hinton having received

and accepted a position as assistant superintendent in the Insane Hospital at Jacksonville, his resignation was accepted and Dr. Wells was elected secretary in his stead.

The following amendment to the By-Laws was unanimously adopted: "*Resolved*, it is derogatory to the standing of the medical profession and detrimental to the public health for any member of the profession to resort to competitive bidding to secure public, society, corporation, casualty company, college or school appointments, or to contract for term service to societies, corporations, colleges, schools, families, or individuals for a fixed lump sum, or in other words to take the chances of such societies, corporations, institutions, families, or individuals having more or less sickness or casualties during such term; and any member of this society who shall be guilty of an infraction of this rule shall be liable to discipline for unprofessional conduct. Provided, that this rule shall not be held to apply to appointments to purely charitable or eleemosynary institutions. Any member of this society going in consultation with a member guilty of such unprofessional conduct shall be considered likewise violating this By-Law."

The society adjourned to the Hotel Newcomb for luncheon.

After the luncheon the president introduced Dr. D. N. Eisendrath, of Chicago, who addressed an audience composed of the members of the society, their visiting friends, and a number of nurses from the Blessing Hospital Training School, and presented in a masterly way "Some of the Complications of Appendicitis." Dr. Eisendrath's visit to our city was very much appreciated by the profession of Quincy and Adams county.

Dr L. B. Ashton presented a paper on "Hyatid Disease," with demonstrations of the "daughter cysts" and microscopic slides of the scolices and hooklets from their contained fluid. This case occurred in the surgical clinic of Dr. Henry Hart at St. Mary's Hospital, and was a highly interesting one. Dr. Christie showed a specimen of carcinoma of corpus uteri. A small fibroid was also found in the same uterus. Dr. Brenner presented a postmortem specimen of congenital occlusion of the ileocecal valve.

C. A. WELLS, Secretary.

The Adams County Medical Society met in regular monthly session, June 10, in the Elks' club rooms, Quincy. The president called the meeting to order and the following members were present: Drs. Rice, Nickerson, Johnston, Erieson, Ashton, Miller, Christie, Robbins, Montgomery, Zimmermann, Knox, Brenner, Shawgo, J. B. and Kirk, Schullian, Hart, Gabriel, Nichols, H. J., Meyer, Pfeiffer, Werner, Baker, Germann, Knapheide, Blikhan, and Wells. The matter of a river excursion and scientific program for the meeting of August was left to the entertainment committee. The society expects to have a joint meeting with the Hannibal and Marion county physicians at the August meeting. The secretary was instructed to pay into the State Society treasury their pro rata of all dues coming into his hands at any time during the year. Dr. Montgomery addressed the society on the question of having a general quarantine sign for use in doubtful cases of contagion, or pending the development of the disease and its diagnosis by the attending physician. This proposition was advanced by the medical members of the Board of Health and met the hearty approval of the society. The society then adjourned to the Hotel Newcomb for luncheon.

In the afternoon, Dr. Emil Reis, of Chicago, was introduced and gave an address on "Carcinoma of the Uterus," which was enjoyed by a large number of the profession and nurses of this city and county.

The society, by adoption of resolutions, approved and endorsed the efforts of the local Board of Health in their fight for pure milk and wholesome meats for the citizens of Quincy.

C. A. WELLS, Secretary.

#### BI-COUNTY (IROQUOIS-FORD) SOCIETY.

The thirteenth regular meeting of the Bi-County (Iroquois-Ford) Medical Society, held at Gilman, Ill., Tuesday, June 4, 1907, was the most largely attended and in many respects the most interesting and successful in the history of

the society. A committee of local physicians met all incoming trains, and throughout the day the visitors were able to feel themselves welcome guests of their Gilman colleagues. After a most excellent dinner all repaired to the Oddfellow's Hall, order was called by President S. D. Culbertson. Action on a proposed amendment to Article V of the Constitution, which would substitute the words, "four vice-presidents, one to be selected from each meeting place," was postponed until the next meeting. An amendment to Section 3, Chapter 2, of the By-Laws, which would substitute the word "may" for the words "shall not," was then read, discussed, voted upon, and carried. Motion prevailed that a committee of three be appointed by the president to draft a fee bill and report the same at the next meeting. Committee appointed, Drs. R. E. McKenzie, F. R. Lovell and E. E. Hester. A motion was then presented in writing by Dr. A. J. Newell, to be voted on at the next meeting, "to so amend Chapter 2, Section 2, of the By-Laws, as to make Gilman, Ill., the place at which all meetings of this society shall, in the future, be held." Drs. Samuel Haley of Wellington, Herbert Rankin Struthers of Ashkum, C. F. Hewins of Loda, and H. D. Rothgeb of Gibson City, were then elected members of the society. Applications for membership were then received from Drs. G. W. Rudolphi of Elliott, Otto Fikenseher and A. A. Absher of Sibley, G. A. Wash of Gibson City, and H. N. Boshell of Melvin. Referred to censors. It was moved, seconded and carried that the president appoint a member to act locally with the legislative committee of the state society. The president appointed Dr. S. S. Fuller of Paxton.

The following program was then presented:

(1) President's address: A Retrospective View of the Bi-County Medical Society, and some of its present duties, as a society, S. D. Culbertson, M.D., of Piper City.

(2) Prostatitis and Prostatic Hypertrophy; when should the treatment be medical and when surgical? Frederick A. Leusmann, M.D., Chicago.

(3) A Case of Ante-Partum Eclampsia, with Delivery at Term—A plea for more careful and systematic study of urine during pregnancy, Martha Anderson, M.D., of Roberts.

(4) Acute Hemorrhagic Pancreatitis, with Report of a Case, George W. Ross, M.D., of Watseka.

(5) Report, in part, of the proceedings at the recent meeting of the Illinois State Medical Society at Rockford, Ill., S. S. Fuller, M.D., of Paxton.

The time taken up by the somewhat lengthy program, and previous proceedings, rendered any discussion impossible. Inasmuch as all the papers presented were excellent, special mention of any one might seem to show partiality. But Dr. Leusmann came from a distance and his masterly presentation of his subject, illustrated by many large sketches, made from life, merits more than passing notice. His handling of the subject, while neglecting nothing, showed that easy familiarity only gained by long clinical experience coupled with a knowledge of all that is best and most recent in the literature of diseases of the prostate, their complications, sequelæ and treatment.

ROBERT LUMLEY, M.D., Secretary.

#### CLINTON COUNTY.

The Clinton County Medical Society held its regular annual meeting at Carlyle, May 7, 1907, at 11 a. m. in the office of the president, Dr. T. E. Alsop. The following members were present: Dr. F. M. Edwards of New Baden, S. H. Wilcox, Shattue, J. J. Morony and J. C. Klutho of Breese, Dr. C. E. Hill, Aviston, A. W. Carter and J. G. Vogt, Trenton, B. J. Meinink of Germantown, M. P. DuComb, Keyesport, and W. P. Gordon, T. E. Alsop and J. Q. Roane, Carlyle. Visitors present by invitation were: Drs. H. Vernon, John Dieterich and C. W. Dean, Carlyle, Dr. Geo. S. Rainey, Salem, and Dr. Wm. H. Staples of St. Louis, Mo.

The forenoon session was taken up entirely by business matters pertaining to the interests of the society. It was the prevailing sentiment of the society that the members take a more active interest in legislative matters and that they should endeavor to secure the election of one physician from this district as a



representative to the next General Assembly. A motion was unanimously carried that night or double rates be charged for all country calls after sundown providing that the call is after sundown and the same double rates for town calls after ten p. m.

An election of officers for the ensuing year was held and resulted as follows: President, A. W. Carter, Trenton; Vice-president, S. H. Wileox, Shattue; Secretary, J. Q. Roane, Carlyle; Treasurer, F. M. Edwards, New Baden. The society elected Dr. T. E. Alsop of Carlyle, as a delegate to the State Medical Society meeting with Dr. B. J. Meinink of Germantown as alternate. Dinner was then enjoyed at the Truesdail Hotel.

At 1:30 p. m. the society reassembled when Dr. Wm. H. Stauffer of St. Louis, whose specialty is diseases of the rectum, favored the society with an excellent paper having for his subject "Hemorrhoids." In the discussion that followed, Drs. Rainey, Gordon, Morony and others took an active part. Dr. Rainey later made an interesting talk and invited the society to attend the meeting of the Southern Illinois Medical Association.

### COOK COUNTY.

#### CHICAGO MEDICAL SOCIETY.

A regular meeting was held April 16, 1907, with the president, Dr. George W. Webster, in the Chair. Dr. R. W. McClintock read a paper on "The Opsonic Therapy in Skin Diseases." Dr. Emil Ries read a paper on "Meso-Sigmoiditis, and its Relation to Gynecological Affections," which was discussed by Drs. Pennington, Wagner and Baccus. Dr. E. Laekner read a paper on "Heubner's System of Infant Feeding Based on Calories," which was discussed by Drs. Vanderslice and Walls.

#### DISCUSSION ON DR. RIES' PAPER.

DR. J. R. PENNINGTON:—Dr. Ries has called attention to a very important subject, i. e., the relation existing between adhesions of the sigmoid and the uterus and its appendages. I have made frequent allusions to the importance of such conditions in my lectures on diseases of the rectum and sigmoid for the past seven years. I got my cue from the original work which I did on the rectum and sigmoid in 1899 and 1900. Since that time I have made, what I believed to be, a number of diagnoses of adhesions of the sigmoid to the pelvic viscera and other structures, but in two instances only have I been permitted to operate so as to verify the diagnosis. I made the diagnoses from the histories of the cases and by intra-rectal and intra-sigmoidal examinations and manipulations and abdominal palpitation.

I would like to detail briefly the two cases above referred to. These schematic illustrations (here Dr. Pennington exhibited and explained some drawings) of the cases are intended to show the adhesions and their attachments.

The first case was that of a young maiden, 22 years old. She suffered from dysmenorrhea, leucorrhea, pain in the left inguinal region, obstinate constipation, had lost much flesh, was anemic and a neurasthenic. My diagnosis was adhesions between the sigmoid and the left fallopian tube and ovary and psoas muscle. The operation, which I performed in December 1905, assisted by Dr. Baccus, showed that the adhesions were between the sigmoid and broad ligament and the parietal peritoneum. The uterus and its appendages seemed to be healthy. After the operation, her bowels became regular, the pain disappeared, and her general health greatly improved.

The second patient was referred to me by Dr. F. B. Earle, some five or six years ago. He had pain in the left side, obstinate constipation, incontinence of gases and was a neurasthenic. I made a diagnosis of sigmoidal adhesions and chronic appendicitis. Operation was refused. He returned to me six months ago, when, assisted by Dr. Baccus, I opened the abdomen and found most beautiful adhesions between the sigmoid and the parietal peritoneum, also, chronic appendicitis.

As stated above, this is an exceedingly important subject, especially when we consider in this connection the relations of an overfilled sigmoid; and, when better understood, there will be less use for vaginal tampons, hot water injections, etc. An overfilled sigmoid, especially if it has a long mesentery, so as to permit it to weigh heavily upon, or to displace the uterus and its appendages, is in my opinion one of the most frequent causes of diseased condition of these organs. In such conditions intelligent treatment does not consist in painting the cervix with iodine and tamponing the vagina with glycerin and boric acid, or ichthyol and glycerin tampons, but in relieving the pressure on the uterus and its adnexa. When that is done, the organs are given a chance to take care of themselves.

Were it not that I fear that you would accuse me of seeing all diseased conditions through the rectum, I would say that the way to treat many uterine troubles, is through that organ and the sigmoid, and when this, after fair trial, fails then through the abdominal wall; but the latter procedure should not be postponed until it is too late to save the imprisoned structures.

DR. CARL WAGNER:—This subject was first brought to my attention eight or nine years ago, when after a second operation on a lady, I encountered an ileus of obstinate character. I had operated on this woman 4 years previously for ruptured extrauterine pregnancy in her own home under bad conditions, with a very gratifying result. Four years afterwards she presented herself again with an intraligamentous tumor, reaching up beyond the umbilicus. I operated, removed the tumor, everything seemingly in good order. Four days later she had symptoms of ileus, and only on the seventh day could I obtain permission to reopen the abdomen. The patient was very weak. Away down in the pelvis I found adhesions pulling the sigmoid to the side and kinking it. The patient died an hour or two after the operation.

About two years afterward I saw another such a case on whom I operated for disease of the left appendages. On the tenth day symptoms of ileus appeared, but I could not get permission to reopen the abdomen. The patient died within a few days. The high rectal tube could not be passed. At the postmortem I found a fully developed volvulus of the sigmoid. About five years ago I reported to the Gynecological Society a case of stones in the ovaries. This patient, a nullipara, had an infection some time previous to the operation. While on a pleasure trip in Europe she was taken suddenly with great disturbance in the abdomen, which was diagnosed as peritonitis. She was treated in a hospital in Stuttgart for a while, and was then removed to a sanitarium. She grew very weak. A tumor was palpated, and diagnosed as an inoperable cancer of the sigmoid. The patient was hurried home to the city. On her arrival here I was called to see her. I found her in a very emaciated condition, vomiting fecal matter. Examination revealed a mass in the pelvis. On trying to pass a catheter in the rectum I met obstruction. I performed an abdominal celiotomy and removed the mass which I had located from above. It consisted of hard exudates around the ovaries. In the ovaries were several black stones in size like walnuts, representing most likely old indurated hematomata. Then we resected piecemeal hard fibrous layers of exudate which extended to the sigmoid encircling it and occluding its lumen. Then I proceeded like Dr. Ries dilating and straightening out of the bowel by introducing through the rectum with my right hand gradually increasing rectal bougies under careful guidance of my left hand intra-abdominal, and finally I succeeded in passing a very large size one. Drainage through the cul-de-sac and suturing at the abdominal opening, closed the operation. The patient made an ineventful recovery and is well to-day.

DR. V. J. BACCUS:—The first patient whose case was reported by Dr. Pennington had had appendicitis previously. When I examined her, the conditions were negative, but knowing that she had had one attack of appendicitis, I concluded that the trouble had become chronic. It is hard to explain the etiology of these adhesions that Dr. Pennington found at the operation. Perhaps they were due to an infection, although it is known that trauma may cause these adhesions.

There is also a chronic adhesive peritonitis which is recognized as being of non-bacterial origin.

The second patient also gave a negative personal and family history, and the examination revealed a tender point over the appendix. In this case the adhesions were below the brim of the pelvis and there could be found no cause for the trouble in the sigmoid, which appeared to be normal. The appendix, however, showed evidence of chronic inflammation.

#### DISCUSSION ON DR. LACKNER'S PAPER.

DR. J. W. VANDERSLICE:—While an enormous amount of valuable scientific work has been done within the past few years as to the amount of daily food requirements, yet the application of these findings to infant feeding has not been made to any great extent in this country. The term calories is familiar to all of us but as to our ability to think in calories as we plan a diet for an infant I am afraid is beyond the most of us. It has been determined by many careful observations that these amounts are necessary for the normal growth and development of the infant, yet as a clinical fact we know that most healthy, active babies take amounts in excess of these figures. It must always be remembered that any set of figures are for averages and not for any specific baby and an amount of food representing a certain "energy quotient" may be the amount needed for one child of a given age and weight but would be entirely inadequate for another child of the same age and weight but with another temperament. As to whether there is actual harm done by the ingestion of more food than is actually necessary for the normal growth and repair can not be maintained so long as the digestion is not embarrassed, and on the other hand it is quite necessary that there be a certain bulk and residue in the *prima via*, and to my mind one of the chief causes of constipation in the refinement of our diets is that there is not this normal residue where there is ingested food of such quantity and amount as does not accomplish this requirement. Following along this line we see how Finkelstein has demonstrated beyond all question or dispute that it is harmful to feed an infant upon a food which contains more than 2 per cent. fat, yet to some of us it appears odd that Nature should for these thousands of years been feeding her offspring a three or four per cent. fat food in milk, and I would ask if we are to consider that the free fat in the normal infant stool is a disadvantage and not a wise provision. While the amounts indicated may nourish and develop normally a child given that amount in calories, yet the advantage to my mind is that by this method we avoid a real danger, that of under-feeding.

Much has been said about over-feeding but my experience in a fairly large clinic teaches me that there is danger of our forgetting the possibility of going too far in the other direction; this may occur under the best of conditions, as where a certain mixture is fed to a child for too long a time, because this formula has been advised by a specialist and as it apparently agreed with the child, the formula was not changed when it should have been, but the point I wish most to make is that we must have a certain number of calories in a certain bulk. Our infant food must have the same energy quotient as mother's milk. The objection to the use of diluted cow's milk does not lie so much in the arrangement of the percentages of fats, sugars, and proteids as it does in the fact that to give the food value necessary we must give twice the bulk that would be necessary were we giving breast or bovine milk.

It is plain wherein lies one of the great etiological factors of much of our chronic dyspepsias and dilatations; this common error of too great bulk will account for many. It is a common occurrence to see a six months old infant taking twelve to fourteen ounces of some mixture or other, every two or three hours while five feedings of the equivalent of eight ounces of milk is sufficient. The anatomy of the digestive tract is such that this larger amount will eventually be disastrous to digestion.

We are practically of one mind as to the frequency and amount to be given a child at a given age, but in our milk mixtures we seem to entirely disregard the energy quotient; for example, the common mixture for a child of three months,

of sugar,  $6\frac{1}{2}$  per cent., proteid, 1 per cent., fat, 2 per cent., has a food value of fifteen calories per ounce, while mother's milk has a value of nineteen plus. This difference in food values where the proprietary foods are used is even greater. The caloric value of such foods when diluted according to the directions printed on the label is as low as  $6\frac{1}{2}$  per cent.

My plea is for an infant food of a caloric value equal to mother's milk. There are but few who believe that milks differ only in the percentage and as we can not make a synthetical breast milk our problem then is to adapt cow's milk to the infant digestion, and as cow casein is the element which causes the greater difficulty because of its curdling in large curds, and as this can be done by the addition of sodium citrate to the milk, this so modifying the casein so that it curds in fine flakes, so rendering cow's milk easy of digestion by the infant.

Therefore cow's milk with the addition of sodium citrate is the best artificial food for infants because it modifies the casein in such manner as to cause it to curd in finer curds, because the food has a caloric value superior to breast milk and that sodium citrate is not foreign to human milk and is the most simple of any method of infant feeding in vogue.

DR. FRANK X. WALLS:—We all agree that Heubner has done as much as any one to clear up the question of artificial feeding of infants. I take it, however, that the feeding of children by calories was not what Heubner had particularly in mind, but rather that he believed that the greatest danger in feeding is over-feeding, and this may be prevented by a calorimetric check. If children are fed as has been the custom on foods rich in fat, the child will get more fat than it can take care of. Czerny in particular called attention to the danger of giving children foods that may be perfectly pure but in amounts that are beyond their power of digestion. The maximum amount of food as stated by Heubner is, one hundred calories to a kilo of weight per day during the first six months of life. That is a working rule, not to exceed that amount of food. I think a good way is to say, with Budin, that the child should **not** have more cow's milk than 10 per cent. of its body weight. A child on  $2\frac{1}{4}$  ounces of pure cow's milk, as in the schedule exhibited, would soon reach a condition that Heubner speaks of as a "catastrophe." He suggested as a working rule for healthy babies that they might be given a mixture consisting of one-third milk and two-thirds sugar solution after the third week, but he does not give a definite rule, because that question must be determined in the individual case. The baby must be fed slowly, because cow's milk is so different from mother's milk. It is impossible to start out with a definite rule. It must be given tentatively until we can see what the child will take care of. It must be trained to take care of a milk that is different from mother's milk. By proceeding slowly in this way, a healthy baby three weeks old may be fed on a simple mixture of one-third wholesome milk diluted with sugar solution. Then we can slowly go to one-half and finally two-thirds milk. Always keep in mind the individual child, and do not increase the mixture until you are certain that the child can take care of its food. To be successful in the treating of infants one must be careful not to over-feed, and this can be avoided by giving a well-balanced food which shall satisfy the baby, occasion a regular gain in weight and which must not contain an energy quotient, as stated by Heubner, in excess of 100.

#### CHICAGO SURGICAL SOCIETY.

A regular meeting was held March 1, 1907, with the President, Dr. D. W. Graham, in the Chair.

Dr E. J. Brougham reported a case in which he resected eleven and one-half feet of the small intestine for gangrene.

Dr. M. L. Harris said it is one of the longest pieces of intestine which has been removed successfully. The case was interesting from the fact that the part of the intestine removed was the upper part.

Dr. D. W. Eisendrath said the result was remarkable, considering the extent of the gangrene, and the large mortality attending cases of gangrene of the small intestine following embolism and thrombosis of the mesenteric vessels.



Dr. William E. Morgan reported an interesting case of resection of the kidney for pyonephrosis.

Dr. L. L. McArthur spoke of large saccular dilatations of the kidney pelvis, and said he had in the past year had three such cases. In two of these, in clamping off, as he thought, the diseased kidney and its pedicle, he really clamped through a very large pelvis. He found, when the kidney was removed and the clamps taken off, he still had a large pocket lined with mucous membrane communicating with the ureter. Saccular dilatations of the pelvis of the kidney frequently occur as a result of trauma. He had had one case of oblique implantation of the ureter in the pelvis, with consequent dilatation of the kidney. By correcting the kinking of the ureter a good result was obtained.

Dr. Edward H. Ochsner said, in connection with Dr. Morgan's case, that he had observed that as soon as a patient was thoroughly anesthetized, and especially after incision has been made down to the kidney, a pyonephrotic kidney would move up and down with respiration, while as long as the patient is awake or only partially anesthetized, it would not move at all with respiration. The reason for this was that the muscles on the side of the lesion as well as the diaphragm were restricted in their motion because of the inflammatory process. In reference to packing an infected kidney after nephrotomy, he had seen several severe secondary hemorrhages because the gauze was allowed to come directly in contact with the cut surface of the kidney. Primary hemorrhage from an incised kidney was not dangerous and could easily be stopped by firm pressure with a hot pad, while secondary hemorrhage was extremely dangerous. The danger from secondary hemorrhage could be greatly reduced if one would pack the incised pyonephrotic kidney, using gauze and rubber tissue or rubber dam in such a way that the pressure is made by the gauze upon the rubber tissue and the rubber tissue upon the cut surface of the kidney, avoiding as much as possible direct contact between the gauze and the cut surface; in other words, a very carefully applied cigarette drain. When this drain was removed, it was not nearly so apt to draw the thrombi out of the larger vessels.

Dr. Jacob Frank thought the good result obtained in Dr. Morgan's case could be attributed largely to the fact that the infection was from the colon bacillus. Had it been a tubercular infection, postoperative result would not have been as good. Dr. Frank pointed out that in abscesses of the kidney it was better, if one decided to resect a kidney, to operate in two sittings. First, to drain, wait until the parts have contracted, get them in a fairly aseptic condition, and then resect the kidney.

Dr. D. N. Eisendrath reported the following cases: Tabetic fracture of the os calcis; removal of a safety pin from the trachea; and showed x-ray plates of fractures of the metacarpal bones.

#### SURGICAL INTERVENTION IN LEONTIASIS OSSEA.

##### ABSTRACT.

ALLEN B. KANAVEL, M.D.

Up to the present time the feasibility of surgical intervention for the cure of palliation of leontiasis ossea has not been carefully considered. The analysis of the cases noted in the literature with the report of one observed by myself is made for the purpose of determining whether or not such intervention is justifiable. And in case of operation, of deciding to what extent it should be carried, and what are the probabilities of curative or palliative results.

Thirty-five so-called typical cases have been recorded and a careful study made of nineteen skulls. The general division of the cases may be made into: 1. Isolated bones involved. 2. Hemihypertrophy of the face and skull. These cases are always most marked in the anterior portion. 3. Bilateral involvement of certain bones. 4. Involvement of the entire face and skull. In these cases the inferior maxilla is frequently uninvolved or not mentioned.

In relation to cerebral compression it is noted that fourteen patients showed symptoms which could be attributed to cerebral compression, and in at least

half of these operation would have been of benefit to the patients. Seventeen of the thirty-five cases showed involvement of the orbital cavities. The eyes were pushed out by the increasing bony deposit, and this proptosis practically always preceded evidences of optic neuritis, and there is every reason to believe that the blindness was due primarily to the encroachment upon the orbital cavities. Many of the patients lived for years after blindness intervened.

After adding the bibliography, the reports of the cases and the skulls, the article is summarized as follows:

1. Operative procedures are justifiable in a certain proportion of the cases.
2. No well defined operation can be suggested as a curative measure. The pituitary body has been observed enlarged in only one case, and there microscopical examination is lacking. Further careful examination should be made when opportunity presents itself.
3. Palliative operations should be done to relieve cerebral compression, and encroachment upon the orbital and nasal cavities. The indication for these procedures is clear; the diagnosis can be made, and relief from symptoms with the preservation of sight and mentality for years can be expected.
4. Obstruction of the blood supply and operations for cosmetic purposes may be considered.
5. The relationship between acromegaly, von Recklinghausen's disease and generalized tropic changes in bones on the one hand and so-called leontiasis ossea on the other cannot be stated at the present time, therefore, the latter should not as yet be classified as a pathological entity, although its clinical individuality should be retained.

Dr. Kanavel's paper was discussed by Drs. H. Kahn, Alexander A. Goldsmith, E. F. Snyder, D'Orsay Hecht, and the discussion closed by the essayist.

#### CRAWFORD COUNTY.

The Crawford County Medical Society met in regular session in the Carnegie Library at Robinson, Thursday, May 2, 1907. There were present: Drs. Firebaugh, Ikemire, Midgett, T. N. Rafferty, Gordon, Dunham, Illyes, Lowe, Carlisle and H. N. Rafferty.

Dr I. L. Firebaugh gave a lecture on Fractures and Dislocations, which was very interesting and instructive, and which opened a discussion participated in by nearly all present. The Chair appointed Drs. J. A. Ikemire, Frank Dunham and H. N. Rafferty as the committee on program, to arrange program for the next year's work and report same at the annual meeting in July.

It was decided to consider the subject of "Obstetrics" and to ask Dr. C. H. Voorhees to address the society on The Conduct of Normal Labor, at the July meeting.

H. N. RAFFERTY, Secretary.

#### FULTON COUNTY.

The thirty-eighth meeting of the Fulton County Medical Society was called to order by President Chapin at 1 p. m., May 1, in the Churchill House parlors in Canton. The following members were present: Drs. Chapin, Rogers, Oren, Scholes, Parker, Boynton, Reagin, Blackstone, Stoops, Sutton, Roberts, E. S. Nelson, Coleman, Ewan, Shallenberger, Putman and Ray. The following visitors were present: Dr. Nelson Adams and Miss Havermale of Canton, Dr. Charles Moorhouse of Marietta and Dr. Simmons of Norris.

Dr. Rogers read a paper on Ulceration of the Lower Extremities, and Dr. Stoops presented one on Hereditary Syphilis. Both of these papers were well received and freely discussed.

The president appointed the following as program committee, who subsequently reported the following, which was adopted: Program for the July meeting: Smallpox, Dr. R. T. Ewan, Springfield; Malaria, Dr. William D. Blackburn,

Breeds. Operative Appendicitis, Dr. A. C. Clutts, Ellisville. Selected, Dr. Veda C. Murphy, Cuba. Trifacial Neuralgia, Dr. C. D. Snively, Summum. Eclampsia, Dr. A. J. Baxter, Astoria. Neurasthenia, Dr. P. S. Scholes, Canton.

Drs. Shallenberger and E. S. Nelson moved that the secretary thank the legislative committee for their efforts during the present session of the state legislature, and to sign the names of each member of the Fulton County Medical Society to a petition asking the representatives and senator from this district to oppose House Bill 319, osteopathic, House Bill 850, osteopathic, and Magnetic and Senate Bill 267, antivivisection. Drs. Scholes and Rogers moved that the delegate and secretary be instructed to use their efforts in placing the protective feature of the State Society on an equitable basis. Drs. Shallenberger and Scholes moved to reconsider the motion made at the December meeting, giving the delegate the power to select his alternate. Carried. Original motion was lost on vote of the meeting. Drs. Scholes and Rogers moved that Secretary Ray be elected alternate to state meeting. Carried.

Dr. Shallenberger gave notice that at the July meeting he would present an amendment to the by-laws placing "not in good standing" any physician entering into contract or performing professional services for a less fee than that prevailing in the community where such services are rendered.

D. S. KAY, Secretary.

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### JACKSON COUNTY.

The Jackson County Medical Society held its regular monthly meeting May 16, at 2:00 p. m. at Murphysboro, Ill. The following physicians of the county were present: Whitacre, Monroe, Etherton, McAnally, Lacey, Mitchell, Thompson, Hortsman, Molz, Ingram, Essick, Ormsby and Roth. The following program was presented: Dr. Mitchell gave a lecture on Surgical Treatment of Fractured Patella, also showing two x-ray plates taken from a patient on whom an operation had been done for a comminuted fracture of patella, united by wire. Dr. Essick exhibited a boy on whom an operation for resection of femur and tibia and removal of patella had been done for tuberculosis of bone. Dr. J. C. Etherton's paper on What Constitutes a Successful Physician was enjoyed by all present.

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### MORGAN COUNTY.

The Morgan County Medical Society held its regular meeting at the Library, Jacksonville, Ill., May 9, 1907, at 8 p. m., Vice-President H. C. Woltman in the Chair. Sixteen members were present. Dr. C. W. Fortune and Dr. E. W. Gardner of Literberry were unanimously elected to membership in the Morgan County Society. Dr. Norbury cited two very interesting cases of Ménière's disease that he had seen in the past week or so. The papers of the evening were by Drs. Byron Gailey and Cole. Dr. Gailey discussed the Ear and Nose Complications of Influenza, and Dr. Cole the Pulmonary Complications.

A. M. KING, Secretary.

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### MADISON COUNTY.

The annual meeting of the Madison County Medical Society was held at the rooms of the Commercial Club in Alton, Ill., on the evening of May 7, about 30 members being present. This was the occasion of the annual visit of our district councilor, Dr. Carl E. Black, of Jacksonville, who made an address and answered many questions for the information of those present. The election of officers resulted as follows: Dr. T. P. Yerkes, Upper Alton, president; Dr. Waldo Fisher, Alton, vice-president; Dr. E. W. Fiegenbaum, Edwardsville, secretary; Dr. J. H. Fiegenbaum, Alton, treasurer. Board of Censors: Dr. S. T. Robinson, Edwardsville; Dr. W. L. C. Smith, Godfrey, and Dr. A. F. E. Schierbaum, Ma-

rine. Representative to the State Society, Dr. S. T. Robinson; alternate, Dr. E. W. Fiegenbaum. The applications of Dr. J. A. Hirsch, Edwardsville, Dr. Ralph B. Scott, Venice, Dr. W. W. Everett, Highland, and Dr. Charles R. Kiser, Madison, were favorably reported by the Board of Censors, and all of the above were elected to membership. Dr. S. T. Robinson then read a paper on Reciprocity, which was freely discussed by all the members present. The next meeting will be held in Edwardsville on June 7, in the afternoon, to give members of the south and east portions of the county an opportunity to be present. This society has taken on new life, and now numbers among its members a greater portion of the best men in the profession. Meetings will be held quarterly in different cities of the county, and a good program will be prepared for each meeting.

E. W. FIEGENBAUM, Secretary.

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### MONROE COUNTY.

The Monroe County Medical Society met in the courthouse at Waterloo, Monday afternoon, June 3. There are eighteen physicians in the county, sixteen of whom are members of the society. Ten members were present. The following were elected officers for the ensuing year: Dr. H. Heidelberg, president, Hecker; Dr. N. Kohlenbach, vice-president, Columbia; Dr. Adelsberger, secretary, Waterloo; Dr. J. C. Fults, treasurer, Waterloo; Dr. J. P. Miller, censor (three years), Chalfin Bridge; Dr. J. S. Sennott, censor (one year), Waterloo. Dr. Sennott of Waterloo was elected as a delegate to the next meeting of the Illinois State Medical Society, and Dr. Fults of Waterloo as alternate.

In compliance with a request from the secretary of the Illinois State Board of Health, a resolution was adopted by which the society will notify the State Board of Health of all violators of the medical practice act, in order that prosecutions against offenders may be instituted by the State Board. The courtesies of the society were extended to Dr. Fred Vogel of St. Clair County.

Dr. Pautler presented a case of multiple osteoma in a child aged 3. Dr. Sennott read a paper on Vesico Vaginal Fistula and the new Anesthetic Hyoscine, Morphin and Cactin. He also spoke of medical legislation by the last legislature, referring to the new laws enacted and to the bad ones defeated by the concerted action of the members of the State Society. Drs. Miller and Fults related cases of osteoma. Drs. Miller, Rose, Wilhelmj and Douglas were appointed to entertain the society at its next regular meeting in September.

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### M'LEAN COUNTY.

*Meeting of April 4, 1907.*

The regular and annual meeting of the McLean County Medical Society was held in parlors of the Illinois Hotel, Bloomington, Thursday evening, April 4, 1907. The president, Dr. Bath, being called away, Dr. J. B. Taylor acted as temporary chairman of the meeting. Dr. J. W. Smith reported that the committee appointed to investigate the coincidence of the local and state societies' fiscal years recommends that our By-Laws be so changed as to make our fiscal year identical with the state society fiscal year, and that this change be voted on at the next meeting of the society.

Election of officers for the year 1907: President, Dr. F. H. Godfrey; vice-president, Dr. E. E. Sargent; secretary-treasurer, Dr. Rhodes; censors, Dr. Hart, Dr. J. L. Yoltan and Dr. Elder. The society adjourned to the ordinary for dinner.

Dr. Mix addressed the society on the subject of Heart Block, saying that the term was used by Gaskall in 1882, who found that if the auriculo-ventricular septum was pinched there was a block in the contraction. Wm. His discovered a bundle of fibers in 1892 which extends from the left coronary sinus to the inter-ventricular septum. This bundle is known as the bundle of His, and when cut produces a block. Joseph Ehrlanger of Johns Hopkins concluded that the Stokes-



Adams syndrome, which consists of three symptoms, viz., a pronounced bradycardia of 30-6 and even 3 pulsations, a wavy pulsation in the jugular vein with syncopal or epileptiform attacks is concerned with the pinching or severing of this bundle, the harder the pinching the greater the block. There are two theories of heart contraction, the neurogenic and the myogenic. As there is heart beat in the embryo before nerve connections appear we must give up the neurogenic theory. By irritating the vagus the heart beat may be inhibited and its strength increased. The inhibitory effect on the vagus extends no further than the auricles. The next step was to find cases in which there was a lesion in the bundle of His, where the Stokes-Adams syndrome was present. This has been done. The cardiogram and the spgmogram when attached to the brachial arteries have revealed significant tracings. The auricular contraction can be measured with the ventricular and the relations of same compared. Jugular tracings show three or four small and two large waves, or about three auricular to one ventricular contraction.

O. M. RHODES, Secretary.

*Meeting of May 9, 1907.*

The May meeting of the McLean County Medical Society was held in the City Hall, Thursday evening, May 9, 1907. The meeting was called to order by President Bath. Dr. Bath in a short address reviewed the work of the year and made some valuable suggestions as to the future course of the society. Following his remarks he introduced his successor, Dr. F. H. Godfrey, who in a few well chosen words thanked the society for the honor conferred upon him in choosing him president.

The secretary-treasurer's report for the year, April 5, 1906-April 4, 1907, was made and accepted. Receipts: From former treasurer, Dr. R. A. Noble, \$67.75; membership dues, local and state, to April 4, 1907, \$233.50; from three dinners at Illinois Hotel, to April 4, 1907, \$102; total receipts to April 4, 1907, \$403.25. Disbursements: To Dr. R. A. Noble, salary as secretary-treasurer to April 5, 1906, \$25; to E. W. Weis, state dues, \$152.50; to Dr. McCormack lecture, \$30.40; to Dr. Percy, dinner Illinois Hotel, \$36.50; to expense of Dr. Percy, \$6; to Dr. Pettit, lecture, \$10.50; to Dr. Quine, dinner Illinois Hotel, \$36.80; to Dr. Larned, lecture, \$6.85; to postage, postals, stenographic paper and blank cards, \$17.47; to Nimrod Mace, printing, \$5.25; to F. I. Miller, printing, \$2.50; to *Pantagraph*, notices, \$4.15; to *Bulletin*, 90 cents; to J. D. Robinson, floral offerings, Dr. Elder and Dr. Foster, \$8; to annual banquet, \$40; to telegram, Dr. Mix, 25 cents; total, \$383.07. Total receipts for year, April 5, 1906, to April 4, 1907, \$403.25. Total expenditures for year, April 5, 1906, to April 4, 1907, \$383.07. Balance on hand April 4, 1907, \$20.18.

The following members have suspended themselves for non-payment of dues: Drs. Ayling, Gridley, Ballard, Chenos, Balcke, Cropsey, Carr, Chapin, Cody, Curry, Douglas, Hyndman, Jackman, Little, Skaggs, Speer, Taylor, and Henline.

Report of receipts and disbursements from sale of rating book. Receipts: Thirty-seven books to physicians of McLean County Medical Society, at \$1 each, \$37; 20 books to dentists of McLean County Dental Society, at \$1 each, \$20; 7 books to homeopaths at \$1.35 each, \$9.45; total, \$66.45. Expenses: To *Pantagraph* for printing and binding 100 books, \$75; to G. M. Adams for 200 rating blanks, \$2; to Miss Haines for typewriting, \$2.40; to Ed Sharf for typewriting, 10 cents; total disbursements, \$79.50; receipts, \$66.45; balance due, \$13.05. Number of books on hand May 9, 1907, 36.

Dr. Vandervort made a motion, which was seconded and carried, that the secretary be reimbursed for the amount advanced by him on the rating books, \$13.05.

A motion was made that the secretary record as "reinstated" those members who, having suspended themselves by failure to pay dues, and have since paid up. Motion seconded and carried. Those who should be so marked are Drs. Bonnett, Horine, Carr and Henline. Applications for membership were made by Drs. Ora L. Thompson of Ellsworth and John W. Dobson of Bloomington.

The following committees for the year were read: Judiciary committee, A. L.

Fox; Lee Smith, and H. L. Howell; committee on health and sanitation, J. B. Taylor, F. C. McCormick, R. D. Fox, F. C. Vandervort, A. E. Rogers, and T. W. Bath; committee on entertainment, J. W. Fulwiler, J. H. Fenelon and J. Whitefield Smith; program committee, F. C. Vandervort, W. E. Guthrie, C. E. Chapin, R. A. Noble, and J. K. P. Hawks. Dr. T. W. Bath was elected as delegate to the state convention. A motion was made, seconded and carried that the delegate select the alternate.

By unanimous vote of the society Article VIII of the By-Laws, adopted May 5, 1904, was changed to read as follows:

#### ARTICLE VIII.

SECTION 1.—The fiscal year of this society shall begin January 1 and end December 31 of the same year. Every member of the society shall pay to the treasurer January 1 of each year, such dues as he may be assessed by the society, and every member shall pay to the treasurer one dollar (\$1.00) as membership fee before his name is enrolled as a member, except such members transferred from other component societies, who shall be assessed no initiation fee.

SECTION 2.—Every member neglecting or refusing to pay his annual dues by December 31, shall be held as suspended without action of the society.

SECTION 3.—A member suspended for non-payment of dues shall be restored to full membership on payment of all indebtedness.

SECTION 4.—It shall be the duty of the treasurer to notify the members of their indebtedness one month before suspension from the society.

Dr. R. A. Noble was the speaker of the evening and gave an interesting and instructive paper on the subject, *Is a Trip to Europe Worth Its cost to a Medical Man?* Dr. Noble spoke of the value of having arrangements for study definitely outlined before reaching Europe and the difficulty of the student in obtaining the information desired. He emphasized the opportunities afforded for serious study, and likewise the ease with which officially signed certificates may be procured on payment of the requisite amount. He urged the need of a longer time in study abroad than is ordinarily given by the average American, giving one year as the minimum. He referred to the possibility and advantage of one who desires special work securing the position of voluntary assistant in one of the clinics, the only expense in such a case being for board and lodging. The speaker was impressed with the thoroughness and importance given in Germany to research work, and spoke rather more favorably of the smaller universities. Dr. Noble's paper was quite freely discussed and commented on by various members of the society. The meeting adjourned until the first Thursday in June.

O. M. RHODES, Secretary.

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#### VERMILION COUNTY.

The Vermilion County Medical Society met Monday evening, May 13, in the City Hall at Danville. A communication from Champaign County Medical Society asking the Vermilion County Society to cooperate in raising the fees for medical examination for old time insurance companies was read, and our delegate was instructed to cast his influence for such an end at the coming Rockford meeting. Paper on the Diagnosis and Treatment of Leukemia, by Robert Lane. This was a well prepared and interesting paper and again emphasized the importance of laboratory precision in clinical diagnosis.

E. E. CLARK, Secretary.

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#### WOODFORD COUNTY.

The Woodford County Medical Society held its annual meeting at the Court House, Eureka, Ill., Wednesday, May 7, 1907. By-laws and a fee bill were adopted and the secretary-treasurer's report was received. The election of officers resulted as follows: President, H. A. Millard, Minonk; vice-president, F. H. Langhordt, El Paso; secretary-treasurer, J. I. Knoblauch; delegate, R. E. Gordon; alternate, H. H. Langhorst.

## NEWS OF THE STATE.

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Dr. Alex. C. Wiener sails for Europe July 9.

Dr. Arnold C. Klebs sailed for Europe May 20.

Dr. F. X. Walls sailed for Europe about June 15.

Dr. R. B. Preble sailed for Europe about June 15.

Dr. Chalmers Prentice returned from Europe May 25.

Dr. Orville W. McMichael sailed for England June 19.

Dr. Charles Best, Freeport, has returned from Europe.

Dr. and Mrs. Frank Allport sailed for Europe June 11.

Dr. and Mrs. Arthur D. Bevan sailed for Europe June 19.

Dr. and Mrs. Thomas C. McCord, Paris, sailed for Europe June 8.

Dr. David M. Knapp, Mendon, sailed for New York on the *Pretoria* June 8.

Dr. William A. Haskell, Alton, has returned after several months in the Bermudas.

The semi-annual meeting of the association will be held in Chicago in December next.

Dr. William O. Langdon and R. Dillard Berry have resigned from the Springfield Hospital.

Dr. John R. Tobin, Elgin, has been appointed surgeon for the Elgin & Belvidere Railroad.

Dr. Thomas W. Bath leaves next month to take a postgraduate course in surgery and gynecology.

Dr. R. W. Fulton, an aged practitioner of New Berlin, has been in a critical condition for several weeks.

Pontiac is reported to have 12 cases of smallpox. Two cases of smallpox were discovered in Joliet May 22.

Dr. Allen L. Winter of New York City has located in Bloomington and has an office in the Griesheim Building.

Dr. W. E. Guthrie of Bloomington attended the meeting of the American Medical Association, Atlantic City.

Dr. John B. Deaver, Philadelphia, delivered the address before the Senn Club, Chicago, at its meeting Monday, June 17.

Dr. Edward F. Gavin has been elected president and Dr. Fred L. Gourley secretary of the Waukegan Board of Health.

Scarlet fever and diphtheria in mild type are prevalent in Bloomington, where 13 houses have been placed under quarantine.

Dr. Ralph T. Hinton, Quincy, has been appointed assistant physician at the Illinois Central Hospital for the Insane, Jacksonville.

A case of supposed smallpox is reported from Barry, Pike County. An investigation is being made by the State Board of Health.

Dr. Charles E. Martin, Seward, is suffering from acute mental disease and has been placed in the Ransom Sanitarium, Rockford.

Chicago College of Physiologic Therapeutics, Chicago; educational; incorporators, Wm. L. Seeceor, C. G. McDowell, Mrs. W. L. Seeceor.

Dr. Otis Baldwin has been appointed city physician of Springfield, and Dr. John W. D. Mayes, Illiopolis, physician of Sangamon County.

Illinois Post Graduate Medical School, Chicago; capital, \$500; educational; incorporators, William H. Strickler, George A. Bedee, Charles Pratt.

The German Hospital, Chicago, will erect a new hospital building, six stories in height, with 100 rooms for private patients, and to cost about \$250,000.

Dr. Asa R. Freeman, who has recently graduated from the (Marion Sims-Beaumont) Medical Department of the University of St. Louis, has located in Bloomington.

The presidency of Parke, Davis & Co., left vacant by the death of Theodore D. Buhl, has been filled by the advancement of Vice-president and Secretary Frank G. Ryan.

The smallpox epidemic at Plainfield is reported to be subsiding. Out of a total of 27 families quarantined, all have been released except six, and no new cases have developed.

The contract will shortly be let for the Cribside Pavilion, to be erected in connection with the Children's Memorial Hospital. The building will be two stories in height and will cost \$40,000.

In the case of P. M. Combes against Dr. W. Fred Harvey, Rushville, in which \$10,000 damages were asked on account of alleged improper medical services, the jury returned a verdict for the defendant.

At the meeting of the Streator Medical Society, June 5, a resolution was adopted requesting local newspapers to discontinue mentioning the names of physicians and surgeons attending cases of illness or accident.

Dr. Gustav Ruediger, of the Memorial Institute for Infectious Diseases, has been appointed professor of pathology and bacteriology in the University of North Dakota and placed in charge of the state laboratory.

At the meeting of the secretaries of the component medical societies of the state, which met at Rockford May 22, Dr. C. Hubert Lovewell of Chicago was elected president and Dr. Domer G. Smith, Elizabeth, secretary.

Examinations were held June 20 in Chicago, Springfield and East St. Louis for director of the Psychopathic Institute at the Illinois Eastern Hospital for the Insane and for assistant physicians, clinical assistants and internes.

The Chicago Home for Incurables received \$700,000 in bequests during the last six months, but still needs half a million dollars to erect the fifth section of the home and pay its running expenses. The home is now caring for 260 incurables.

At the annual commencement exercises of the College of Physicians and Surgeons, Chicago, June 4, a class of 165 graduated. The degrees were conferred by President Edmund J. James of the University of Illinois, after which Rev. Rufus A. White delivered the doctorate address.

Dr. Albert Weil, the new health commissioner of Peoria, reports that there are 20 cases of smallpox in the Isolation Hospital and recommends the vaccination of all non-immune school children. In accordance with



this recommendation more than 5,000 pupils of the public schools have been vaccinated.

Mrs. Keith Spalding has donated the Edward Sanatorium, Naperville, to the Chicago Tuberculosis Institute, together with \$6,000 a year for its maintenance and \$1,000 to build and equip an annex of six beds. At present the institution has 14 patients, of whom all but one are being treated free of charge.

Dr. Eliza J. Hyndman of Bloomington has just returned from a visit to Cornell College, Mt. Vernon, Iowa, where she attended the commencement exercises and responded to the following toast, "Co-eds." Dr. Hyndman is a graduate of Cornell and was elected president of the Alumni Association for this year.

In the suit brought by John Gonsalve against Drs. Daniel M. Otis and Charles J. Graser, Springfield, to recover damages for a postmortem examination, alleged to have been made without the consent of relatives, the jury sustained the plea of the defendants that the deceased was a dependent person, and returned a verdict of not guilty.

The officers of the Department of Health, Chicago, on June 12, refused to approve a burial permit signed by a so-called "Doctor of Osteopathy." The department stated that no power of issuing death certificates has been granted to osteopaths and that such cases must be referred to the coroner before burial permits can be issued.

At the last meeting of the McLean County Medical Society a committee was appointed, known as the "Booster Committee," whose duty it is to secure, if possible, the names of all legally qualified physicians in the county who are not now members of the society to become interested in medical society work and become members of the society.

At the twenty-fifth annual meeting of the alumni of the College of Physicians and Surgeons, Chicago, held June 4, Dr. A. Ralph Johnstone was elected president; Dr. John Weatherson, vice-president, and Dr. Twing B. Wiggin, treasurer. The health commissioner, Dr. William A. Evans, in his address, made a strong plea for more thorough organization of physicians.

The twelve ambulances of the Department of Health, Chicago, made a total of 260 runs during the week ended June 15, removing 131 sick or injured to the hospitals and 17 to their homes. Of those removed to the hospitals 30 were suffering from communicable diseases. The ambulance surgeons also treated 65 sick or injured persons at the police station and three at the places where the accidents occurred.

The following suicides were reported in Chicago during the first four months of the year: 46 Americans, 30 Germans, 9 Bohemians, 5 Poles, 5 Swedes, 4 Russians, 3 Italians, 3 Irish, 3 Norwegians, 3 Hungarians and 3 Danes. The routes chosen were: gas in 40 cases, gunshot wounds in 22, carbolic acid in 17, hanging and drowning, each, in 9, cutting throats in 7, and miscellaneous methods, 10. During March, 37 suicides were reported; during April, 33; during February, 36; during January, 15.

The new Michael Reese Hospital, Chicago, recently erected at a cost of more than \$700,000, was formally dedicated and opened for the care

of patients June 16. Leon Mandel, chairman of the construction committee, made the address of presentation, and Edward G. Foreman accepted on behalf of the board of trustees. The new hospital will accommodate 300 patients and 100 nurses. It is six stories in height, fireproof throughout, and is fitted with every modern equipment for the scientific treatment of the sick.

An examination for director of the Psychopathic Institute at the Eastern Hospital for the Insane at Kankakee was held on June 20 in Chicago, Springfield and East St. Louis. This is the new state institution proposed by the state board of charities as the central institution for medical investigation for the entire state. Examinations for assistant physicians, clinical assistants and medical and dental internes will be held on the same day. The director will receive a minimum salary of \$3,500 per year and maintenance.

During the month of May the coroner of Cook County investigated 384 deaths, the largest number of cases ever on record. Of these, 55 were due to suicide, 12 of whom ended their lives by asphyxiation, 2 by throat cutting, 2 by drowning, 6 by strangulation, 5 by shooting and 17 by poison, in 10 of which phenol was used. Among other violent deaths, 3 were due to automobile accidents, 21 to railway accidents, 6 to illegal operations, 3 to elevated railway accidents, 8 to asphyxiation, 1 to electrocution, 20 to homicide, 1 to hydrophobia, and 1 to gunshot wound.

Dr. J. Whitefield Smith, Councilor of the Fifth District, has secured a list from the secretary of the State Board of Health of all the legally qualified physicians and surgeons in the counties of his district and has sent lists to each secretary of the names and addresses of all those who are not members of the county and state society, urging upon them to appoint a committee to invite all of those who are eligible to membership to become members of their county society. It is hoped that in this way many valuable additions may be made to both the county and state societies.

The profession of Peoria is already making plans for the Illinois State Medical Society meeting. Dr. Elmer M. Eckard has been named as chairman of the committee on arrangements; Dr. Otho B. Will, chairman of the committee on hotels; Drs. Sumner M. Miller, George A. Zeller and Harry M. Hayes, committee on entertainment of members; Dr. Milton S. Marcy and H. O. Kelly, committee on entertainment of ladies; Dr. Edward E. Barbour, committee on place of meeting; Dr. Aloysius J. Kanne, committee on finances; Dr. William R. Allison, committee on exhibits, and Dr. Frank B. Lucas, committee on printing.

The State of Illinois is to be congratulated in that the next annual session of the American Medical Association is to be held in Chicago. The very central location of this city, its ease of accessibility through its numerous railroads, its commodious hotel facilities, its numerous and spacious assembly rooms, predict the largest gathering of medical men which this country has ever known. Physicians in the State of Illinois should begin at this early date to make their plans to be present in Chicago at this American Medical meeting in June, 1908. Illinois should

have the greatest and largest delegation of any state in the Union. Not only is it their privilege to be present at this gathering, but it should be the duty of the members of the medical profession of this state to join hands with the Chicago Medical Society and render them all possible support and aid in making the great State of Illinois an unexcelled host to the body of medical men who shall gather here next June.

The climatic conditions of the first five months of the year in Chicago show the malevolent influence of the unseasonable weather. The 15,103 deaths reported make a daily average of more than 105, equivalent to an annual mortality of 17.32 per 1,000 of population. This is 16.7 per cent. higher than the rate of the corresponding period of previous decade. Six of the important death causes contributed more than one-half of the total number of deaths. These are: Pneumonia, 3,000, or 762 more than last year; tuberculosis, 1,685; heart diseases, 1,179; nephritis, 1,012; cancer, 500, and nervous diseases, 570, a total of 464 more from the six latter causes than during the corresponding period of last year. These diseases are those over which sanitary science and preventive medicine have as yet obtained little or no influence. Diphtheria, influenza, scarlet fever, measles and whooping cough show a greater proportionate increase. From these five causes 1,155 deaths have occurred thus far this year, or 526 more than for the corresponding period of 1906.

The commencement exercises of the Northwestern University were held the week beginning June 16. There were graduated from the Medical Department 131. Two of this number received the degree of magna cum laude. Thirteen received the degree of cum laude. The annual banquet given by the faculty of the alumni of the Medical School was held Tuesday evening, June 18, at the Auditorium. About 400 alumni were present. Dr. E. C. Dudley acted as toastmaster and the following men responded to toasts: "The University," President A. W. Harris; "Medical Education," George W. Webster; "Renaissance," George H. Simmons; "Manhood," W. H. Pulford; "Civic Virtue," Edwin H. Cooley. Commencement exercises were held Thursday evening, June 20, at the Auditorium. Vice-president Charles Warren Fairbanks delivered the annual address. On this occasion also occurred the formal installation of Dr. A. W. Harris as president of the university. Excellent clinics were held at the Medical School and associated hospitals during the week.

At the annual meeting of the Association of Military Surgeons of the State of Illinois the following officers were elected: President, Col. Nicholas Senn, surgeon-general (re-elected); vice-president, Major Buell S. Rogers; secretary-treasurer, Lieut. Col. Charles Adams (re-elected), and assistant secretary, Major S. C. Stanton (re-elected), all of Chicago. The association adopted unanimously the following resolutions condemning Speaker Cannon:

WHEREAS, A trained medical personnel of sufficient size is indispensably necessary to the welfare of the Army and Navy, as well as to the interest of the whole country; and

WHEREAS, A numerical insufficiency of both the Army and Navy Medical De-

## DEATHS.

DR. C. I. THATCHER, of Chicago and LaGrange, died suddenly of heart failure, May 31, while on a visit in New York City.

BENJAMIN F. LITTLE, M.D., Chicago Homeopathic Medical College, 1877; formerly of Columbus, Ind., died at Hazel Dell, Ill., May 17, aged 88.

RICHARD R. SALE, M.D., University of Iowa, College of Medicine, Iowa City, 1858; a practitioner of Colona, Ill., for 45 years, died at his home in that city, May 20, from angina pectoris, aged 73.

JOSEPH C. BESSETTE, M.D., Harvey Medical College, Chicago, 1899, was found dead in his room in Chicago, June 1, from poison by cyanid of potassium, supposed to have been self-administered, aged 42.

JOHN J. REABURN, M.D., Medical Department University of Iowa, Keokuk, 1869; a member of the Illinois State and Hancock County medical societies, died at his home in Carthage, Ill., May 28, aged 74.

ARCHIBALD E. FRANKLIN, M.D., Medical Faculty of the Western University, London, Ont., 1896; formerly a practitioner of Aurora, Ill., and Chicago, died at his old home in Brockville, Ont., May 16, after a long illness, aged 35.

CYRENIUS A. DAVID, M.D., Rush Medical College, Chicago, 1869; University of the City of New York, 1881; died at his home in Chicago, June 11, from septicemia due to an operation wound, after an illness of two months, aged 62.

JOHN H. BURCHMORE, M.D., Harvard University Medical School, Boston, 1875; a member of the Illinois State and Cook County medical societies; for 30 years a practitioner of Evanston, Ill., died suddenly at his home in that city, from heart disease, June 8, aged 57.

WILLIAM H. PAUL, M.D., Miami Medical College, Cincinnati, 1882; a member of the American Medical Association and a prominent practitioner of Danville, Ill., died at St. Elizabeth's Hospital in that city, May 15, from cerebral hemorrhage, after a short illness, aged 59.

CARLOS ARCHIE ALLEN, M.D., Barnes Medical College, St. Louis, 1896; a member of the American Medical Association; local surgeon of the Chicago & Alton Railway at Virden, Ill., died at his home in that city, May 23, from Hodgkin's disease, after an illness of six months, aged 40.

MARY J. CROSBY, M.D., Northwestern University Women's Medical School, Chicago, 1901, of Chicago; associate obstetrician at Mary Thompson Hospital, is reported to have committed suicide, while mentally deranged, by throwing herself into Lake Superior at Duluth, Minn., May 25, aged 40.

BENJAMIN F. BROWN, M.D., Rush Medical College, Chicago, 1867; a member of the Illinois State and Pulaski County medical societies, died at his home in Pulaski, Ill., January 15, after a short illness, aged 71.

LLOYD EDWIN SPEAR, M.D., University of Michigan, Department of Medicine and Surgery, Ann Arbor, 1869; a member of the American



Medical Association, a veteran of the Civil War, and for more than 25 years a resident of Shirley, Ill., died at his home, June 1, from cerebral hemorrhage, after an illness of one year, aged 66.

JOSEPHUS R. CORBUS (Illinois Army Board, 1865) : M.D., Charity Hospital Medical College, Cleveland, Ohio, 1866 ; a veteran of the Civil War ; formerly surgeon of the Chicago, Rock Island & Pacific Railroad at LaSalle, Ill. ; a member of the United States pension examining board at Chicago for several years ; died at the home of his son in Chicago, June 8, aged 64.

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## ORIGINAL ARTICLES

### THE EARLY DIAGNOSIS OF PULMONARY TUBERCULOSIS.\*

ROBERT H. BABCOCK, M.D.  
CHICAGO.

There are two propositions which are incontrovertible and which have a direct bearing on prognosis and therapy. First, pulmonary tuberculosis is curable, and, second, its curability stands in direct relation to the stage of the disease. The curability has long been known to clinicians, while to pathologists it has been proven by the discovery of healed lesions in the lungs of individuals dead of accident or other than tuberculous affections. The truth of the second proposition is attested also by both clinical experience and pathological research. The comparative benignity of pure and unmixed tuberculosis of the lungs is shown by the mildness of the constitutional disturbance, as well as by the fact that, with exception of cases of miliary tuberculosis of the lungs of hematogenous origin, the initial lesions are limited to a small focus. Other facts attesting its comparative mildness may also be adduced, but it must suffice to cite the readiness with which an incipient tuberculosis yields to life in the open air and a proper hygiene.

It is a wholly different matter, however, when the disease has advanced beyond the stage of incipency. Then other germs have been added and the process is mixed and may be designated very appropriately consumption. It is now a destructive process, and the symptoms, both local and general, are those not of a reactive inflammation, but of softening or caseation and excavation, on the one hand, and of septicemia, on the other. The prospect of a cure or, properly speaking, of arrest grows more remote day by day, becoming less and less the farther the disease gets away from incipency. From the foregoing considerations it is apparent how necessary is the early recognition of pulmonary tuberculosis and how timely are all contributions to this department of diagnosis.

In the incipency of the disease its real nature can scarcely elude detection by the careful examiner who seeks for and judiciously weighs all the general and local symptoms. There occur cases, however, which may be termed latent and which display features of constitutional dis-

\*Read before the fifty-seventh annual session of the Illinois State Medical Society, May 21-23, 1907.

turbance either without signs in the lungs appreciable to ordinary means of diagnosis or with local changes of so indefinite a character that the physician is in doubt how much importance is to be attached to them. In such uncertain cases, therefore, reliance may have to be placed upon other means of diagnosis than physical exploration of the chest.

Koch's old tuberculin, subcutaneously injected, was the first of such aids to receive recognition. Probably every medical practitioner is more or less familiar with the arguments pro and con through his reading, if not through personal experience. Consequently I may be excused if I omit details as to its use and state merely the conclusions arrived at by diagnosticians of experience.

1. Tuberculin for diagnostic purposes is reasonably safe if the doses be sufficiently small and the intervals between them sufficiently long. 2. The initial dose should be 1 milligram or less, which, in the absence of definite reaction, may be doubled after an interval of three days, this second amount to be doubled again if necessary after another interval of same length, until a maximum of 10 milligrams has been reached. 3. Should a reaction still be absent, the individual may be regarded as free from tuberculosis, but should the injection give rise to fever of at least 2 degrees above normal or that previously recorded, aching in the joints and back, nausea and possibly vomiting, yet without râles or other signs in the lungs, it can not be asserted positively that the tuberculous lesion is in the lungs and not elsewhere, as bronchial or mediastinal glands, bones, etc. 4. Neither can it be concluded in such cases that the reaction positively indicates the presence in the body of tubercles, since the symptoms denoting reaction have been known to follow in persons having syphilis. 5. In spite of these objections, the hypodermic use of tuberculin is advisable in dubious cases and generally will furnish reliable data, especially if these are considered together with those of clinical observation.

The *x*-ray as a means of diagnosis is not used extensively and for obvious reasons can not be employed by the general practitioner. In the hands of experts it yields valuable results which may be summarized as follows: 1. Infiltration of the apex of the lung causes a darkening of the area when viewed with a fluorescent screen and a more or less distinct shadow in the skiagraph. 2. Such a loss of transparency may be detected at too early a stage in the evolution of the disease for the development of recognizable physical signs. 3. The fluoroscope also reveals in some cases a retraction of the lung at its lower border. 4. The skiagraph may disclose the presence of cavities, the existence of which may not be open to recognition by the ordinary means of diagnosis. 5. The *x*-ray furnishes a reliable means of appreciating the actual extent of an infiltration. The objection to this instrument as a means of diagnosis lies in the fact that a diminution or loss of transparency may be caused by other than tuberculous conditions which lead to induration of the lung, and hence the findings of the *x*-ray must be interpreted in the light of the symptomatology.

The clinical recognition of latent and incipient pulmonary tuberculosis is one of the most difficult problems confronting the physician and

rarely can be based upon examination of the chest alone. It must take into consideration the constitutional symptoms. Of these the features most commonly thought to indicate the disease are cough, slight elevation of temperature, decline in weight and strength and loss of appetite. All of these and, indeed, others may exist, but cases are not uncommon in which one or more may be absent.

Cough is of diagnostic value, but not by any means the initial symptom in every case, and in some may be so slight as to be obscured or overlooked entirely by reason of more obtrusive manifestations. Moreover, a hacking cough or even one with scanty mucous expectoration may be due to catarrh of the upper respiratory passages and not at all to tuberculosis. It should be looked for, but not receive undue importance.

Expectoration is not among the earliest symptoms, unless we accept hemoptysis, which always should excite suspicion. It should be remembered likewise that, if sputum exists in incipient tuberculosis, it may be mucoid and entirely devoid of bacilli or contain these in small numbers and only occasionally. It can not be depended on, therefore, so long as the disease is latent or still closed. The discovery of the germ, of course, settles the question.

Fever can not be said to be invariable in the very earliest stage of this disease, and when absent renders diagnosis still more difficult. When it is present, it carries great diagnostic weight and should be looked for in every case. Its especially noteworthy characters are its low range, 99 F. to 100.5 F., its almost invariable presence directly after exertion or excitement, and in women its appearance just before and during menstruation. On the other hand, cases may be met with now and then in which the temperature is subnormal instead of elevated.

Decline in weight and strength, especially weight, is likewise a diagnostic symptom, but ambitious and energetic individuals not infrequently deny a loss of strength or pay no heed to it, believing they are merely overworked and tired. Loss of appetite is usually an early feature of the disease and then contributes indirectly to the decline in weight and strength. Cases may be met with in which the ability to take and digest food remains unimpaired.

A blood examination may often aid in diagnosis, especially if the number and character of the leucocytes be considered in connection with the rise of body temperature. Not only is there a pseudochlorosis tuberculosa, but the white cells are either normal in number or actually diminished in incipient cases and, according to Arneth, there is a predominance of those neutrophile elements which contain one, two or three nuclei. Consequently a pronounced leucocytosis in a case without purulent sputa would speak against incipient pulmonary tuberculosis and is a valuable differential point.

The pulse generally shows more or less tachycardia even during physical repose and to the finger feels compressible and weak. The only other early symptoms requiring mention belong to the nervous system and are marked nervousness or erethysm and neuralgias in various parts of the body, but not confined to the chest.

Not one of the foregoing general symptoms taken singly suffices for a diagnosis of incipient pulmonary tuberculosis, and one could scarcely be criticised for hesitating to express a positive opinion based upon these features collectively. They should excite suspicion always, however, and should lead to a painstaking and, if necessary, repeated examination of the chest, since it is on this rather than anything else on which the question of diagnosis must depend.

Inspection of the chest is generally necessary and often yields valuable information in the very earliest stage. Even before obvious retraction and loss of expansion of the affected lung there is usually discernible a slight yet distinct wasting of the scapulo-humoral muscles which, affecting the muscles covering the supraspinous and infraspinous fossæ of the scapula, causes the scapular ridge to stand out more conspicuously than does its fellow on the opposite side. It is this atrophy also which invading the pectorals gives a slight yet appreciable flattening to the infra-clavicular region on the diseased side. With a more pronounced degree of muscular atrophy the apex looks decidedly retracted. Diminution of the respiratory expansion of the apex may be present, but often requires very careful and discriminating inspection for its detection.

Palpation seems to me of inferior importance, since its results are inconstant and depend, in part at least, upon the intensity and depth of the voice. There may be either an exaggerated pectoral fremitus noticeable especially over limited areas at the apex or an enfeeblement, more often the former.

Percussion yields results of positive value in many cases, and yet the likelihood of definite findings depends upon the skill of the examiner, as well as the extent and character of the local changes. The area of primary infiltration is in the posterior aspect of the apex and the secondary localizations develop more rapidly behind than in front. Hence in incipient cases the physician should direct his attention chiefly to the suprascapular and interscapular regions, although by no means neglecting the areas likely to be involved in front and at the base. Space forbids their enumeration and description here, and I must refer you to works devoted to diseases of the lungs.

The change discovered by percussion in cases of latent and incipient tuberculosis is seldom pronounced and usually is very circumscribed, for the reason that the tuberculous deposits occur in limited and scattered foci. Indeed, these deposits may be so small at first as to occasion no appreciable alteration in the percussion note. But when any change is perceptible, this consists either in a very slight impairment of resonance which imparts to the note a somewhat wooden character or in a faint degree of tympany due to relaxation of the lung and which may under circumstances deceive the examiner, leading him to conclude that the area is more resonant than is the corresponding area on the opposite side.

The tuberculous process leads also to more or less retraction of the lung apex and hence in incipient cases valuable information may usually be obtained by carefully marking and comparing the distance to which the two apices extend up the side of the neck. The affected apex is also



less well expanded by respiration than is its fellow, and hence, as I have learned by experience, one often finds that if he repeats his percussion after auscultation the deepened inspirations made by the patient have resulted in a clearer and sharper differentiation of the airless foci and, therefore, a more definite outlining of the impaired areas. After all has been said, however, it is well to remember that the changes found on percussion are often very slight and many times so indefinite as to leave the physician in doubt whether or not any deviation from the normal does really exist.

Auscultation is believed by experienced diagnosticians to afford a more trustworthy means of detecting pulmonary tuberculosis in its very earliest stage than does percussion. The changes in the breath sounds are often so slight, however, that they may escape recognition by the unskilful. The very earliest possible alteration capable of detection is a roughness of the inspirium with or without lessening of the expirium. This roughening of inspiration is not general over the upper lobe, but is circumscribed to those areas in the suprascapular and interscapular regions in which the initial growths of tubercle occur. If auscultation is confined to the front of the chest, as so often is done, this slight but significant modification of the breath sounds may escape detection. Quite speedily, however, secondary foci develop in the apex of the lower lobe behind and toward the base of the upper lobe in front, but always these foci spread especially along the inner border of the lung and must be sought for alongside the vertebral column and sternum. This roughness is usually associated with some intensification of the breath sounds, but these may be enfeebled. There may be jerky or cogwheel inspiration over limited areas at an apex, but I attach less importance to this modification than formerly because of its infrequency. The loud and whispered voice is usually exaggerated and concentrated over the impaired areas, but the opposite may be the case.

Râles become more definite only at a somewhat later stage and then may be anything but pronounced. They denote the development of bronchiolar catarrh and consist either in a fine inspiratory sibilus heard with the first deep inspiration and then disappearing or more commonly in a number of fine crepitant sounds which are audible at the end of a forced inspiration or are only coincident with or immediately follow a gentle cough. Such fine, crackling râles are not essential to an early diagnosis, yet when detected in a suprascapular fossa constitute almost indubitable auscultatory evidence of tuberculosis. They belong to incipieny, not latency, since they indicate an already developed activity of the process, and it would be well if the disease could be diagnosed before râles make their appearance.

#### CONCLUSION.

The recognition of incipient but closed tuberculosis or of a small focus of latent disease in one apex requires not only expert skill in physical examination of the lungs, but also judgment and experience in the estimation of constitutional symptoms. The more obscure and indefinite

the local physical signs the greater must be the attention paid to the systemic evidences of disease, as temperature, changes in the blood, decline in strength, weight, etc. I have known an obscure case of pus infection with doubtful pulmonary findings to be mistaken for pulmonary tuberculosis, when a just appreciation of the relation existing between these signs and the character of the temperature would have avoided the error. On the other hand, many a case of incipient tuberculosis has been mistaken for anemia when a study of the temperature and leucocytes would have led to a different interpretation of the symptoms.

92 State Street.

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### SOCIAL ASPECTS OF TUBERCULOSIS.\*

HENRY B. FAVILL, M.D.

CHICAGO.

The work in the tuberculosis field naturally divides itself into three categories more or less distinct: primarily the development of the scientific facts under the guidance of pathologists, coupled with clinical effort appropriating and adapting for therapeutic purposes all of the accumulating data.

When one considers what has been accomplished since 1880 in this direction, it seems as though we were surely approaching a fundamental conception of the strife between the parasite and the organism. For practical purposes we certainly have an abundance of valuable data. It must be borne in mind, however, that the whole subject of the reaction of the human organism to the hostile parasite is under careful investigation and review, and that our conception of tuberculosis will have to follow the developments of knowledge in respect to these deep physiologic problems, perhaps to the point of entirely altering what is now reasonably fixed scientific dogma. Our great advances in therapeutics have not been entirely due to this increase of accuracy in our scientific concept.

In certain respects a knowledge of the true nature of tuberculosis has been an aid in the combat against it as a general proposition, but the present stage of therapeutic efficiency is the result of scientific effort, clinical rather than pathologic.

Therapeutics is, as it has always been, essentially empiric, and whether we shall ever see the time when it is not so is conjecture. Beyond all question the plan of treatment now approved is the result of painstaking and determined experiment based upon close observation and wide interpretation of strictly clinical facts. Wonderful as the improvement has been in the method of procedure, it is far less the result of scientific acumen than it is the fruit of determined and devoted service on the part of physicians more humanitarian than technically scientific.

So great has been the growth in recognition of the tremendous importance of tuberculosis to mankind on the part of the medical profession and cooperation with them on the part of the people at large that a wave

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of resolution to combat the evil, unprecedented in the history of mankind, is sweeping over the world. The sense of obligation to those whose life conditions make them, on the one hand, unduly exposed and, on the other, hopelessly restricted in their ability to put forth individual correction has grown to the point of imperative impulse and is driving the public on to some beneficial result.

As a phase of this movement comes the necessity for organization, and the second category into which the work falls is that of systematic propaganda. Into this field drift the laborers who have talent for and taste for organization, and, although it is obvious that a great deal of effort might be frittered away on the mere framework of such a structure and although it is easy to lose sight of the real object in the interest as to plan, machinery, office-holding and public prominence, it is yet to be borne in mind that the comprehensive achievement in this warfare can not take place without the highest development toward perfection of this same machinery. It must not be forgotten, however, that this machinery is not only not strictly medical machinery, but that it is only casually and to a limited extent at all a medical matter.

However possible it may be for the profession to organize and develop these instrumentalities of propaganda, the product of their activities is bound to be of much broader relationship. After all has been determined that can be by the medical scientist, after all the organization plan that it is desirable to outline has been realized, there still remains the enormous problem, how to bring to bear upon the masses of people in the world the knowledge and facilities available for their succor in their dire conditions. How to generalize, for the benefit of the race, specific knowledge, how to distribute to the many the special advantages formerly available only to the few, is a problem in sociology, and that means not only a task which can not be solved by physicians as such, but which can be participated in by them only in so far as they make themselves sociologists.

According to our present light, the technic of management in any given case of tuberculosis is reasonably well settled so far as the method of election is concerned, but what may be determined as the minimum in point of facilities, cost and attention, maintaining at the same time efficiency, is as yet more or less open to question. The present conception of a perfect régime, whether prophylactic or curative, in spite of its simplicity of principle, is exceedingly complex in its broader relations as to practicability.

It is perfectly obvious, however, that the success of any movement, considered from the community standpoint, is going to be limited by considerations of feasibility. Not only must the social conditions in which the community reposes be molded, adapted and perfected, but the determination as to the essentials of management of this subject must proceed to the fullest possible extent in the direction of simplification.

The problem of combating tuberculosis in communities presenting comparatively small groups of indigent is really simple. It requires noth-

ing more than a determined, intelligent effort on the part of the forces working to that end. The sparseness of population, the accessibility of open spaces, the comparative cheapness of supplies and the lack of enormous "group inertia" pertaining to masses of people, all offer features of feasibility and ease of management which grow progressively less as the mass in question becomes more dense.

It is only necessary to contrast the problem presented by one city tenement with such conditions to see, at a glance, the task is inexpressibly greater in the large city. It is not merely a question of larger numbers; it is a question of absolutely different conditions of living, involving not only industrial pursuits, fixed styles of habitation and utter absence of open-air facilities, but it involves that great and intangible tenacity of choice found in the masses of people, whereby they apparently prefer conditions of discomfort and squalor to conditions of more sanitary character, which is not at all a matter of intelligent choice upon their part, but a fixed, underlying, psychologic factor recognized by all sociologic observers in their efforts to institute even practicable reform.

These facts make the city problem complex to the last degree and yet the more imperative, for by no possibility can the interests of the intelligent and amenable of the body politic be safeguarded without reckoning with and mastering these lower elements in the community.

The problem is not a mere question of saving the lives of so many poor and ignorant; it is the problem of rooting out and exterminating conditions which continue to breed disease and to serve as a focus from which dissemination to the entire body is inevitable. So far as the determination as to the greatest possible simplicity goes it is as desirable for the small group as for the large one, but the methods whereby the warfare should be carried on are utterly different in the two cases.

The greatest advance toward practical solution has come with the recognition of the fact that radical climatic change is not an essential. It has been demonstrated over and over again that the arrest and cure of a tubercular process is entirely practicable in almost any climatic conditions. Let us not waste time over a discussion as to whether there is a better or worse climatic setting. The fact is, that radical climatic change is impossible for any but a tiny majority of the patients and is, therefore, to be set aside as of no practical importance in the light of our recent experience. The same can not be said, however, as to the relative necessity for clean air. What a pure air is is not easy to state, but that pure air is better than polluted air is beyond question, and that the way to offset the impurity of city air is by providing unlimited access to such air as there is, is also clear.

It is obvious that under present conditions at least most of the tubercular poor have got to be cared for under some conditions other than hospitals or sanitariums afford. There is no immediate prospect that such facilities will be offered nor has the day yet arrived when incipient patients from these classes could be induced, as a rule, to go away for sanitarium treatment. All are agreed that tuberculosis must be met where it is and that some conditions must be established which will ac-



comply adequately two things: First, education of the individual as to his needs and possibilities; second, an opening for him through which these can be attained.

Although as an industrial question the living wage and its bearing upon food is of paramount importance and for that reason becomes the corner-stone of any structure which may be permanent, it is, after all, true that food, irrespective of wages, is the most possible element to supply through philanthropic effort. This really is a mere question of money and sufficiently intimate supervision.

The question of habitation presents the real difficulties in the matter. Though this has a distinct relation to living wage as a broad proposition, it is not as susceptible of adjustment and solution by far as the food question. The individual child, for example, can be fed quite irrespective of the family feeding. It is rare that it can be practically housed at a distance. It is, however, true that such an individual in the family must be housed differently, even though in the same habitation, and how to create out of a tenement mess a hygienic corner is the great problem involved in this matter.

The difficulties are less in cases which are sufficiently early or mild to be ambulatory. The necessity for a combination of perfect rest and fresh air, which modern therapeutics recognizes, taxes the ingenuity of the physician working in this field to the utmost. It is, however, also true that even these forlorn conditions can be combated and in a large measure overcome by sufficient determination.

Again let me call your attention to the necessity for simplification to the utmost degree of our demands as to therapeutic necessities. Once we have determined what are the essentials and have further determined that those essentials can be attained in conditions presenting a certain minimum of facilities, we have established a unit of therapeutic procedure. This may be regarded as a medical determination. The problem of installing efficiently that unit in the thousands of spots where tuberculosis exists is a problem for the sociologist. The machinery necessary to achieve this must be the outgrowth of years of effort from countless workers approaching from all directions, but focusing upon this point. The foregoing brief suggestions bear particularly upon the treatment of those actually involved in the disease.

The greatest problem of the future in the tuberculosis crusade, because the one fraught with the most possibilities, is the problem of prophylaxis. What is to be done to render the chance of infection less? Here we encounter the intricacies of the social structure manifested to a highly multiplied degree. With those diseased we are dealing with, after all, a fraction of the community. For the purpose of influencing those not diseased we are dealing with conditions involving practically the entire mass of people. No one can know what individual is especially in need of protection. No one can at present hypothesize as to the susceptibility or probability of infection. The necessary prophylaxis must be universal and, of course, opens the whole question of the physical habits of a people.

In order materially to influence this question, we find ourselves plunged at once into the depths of difficulty presented by the conditions of the industrial classes. The well-to-do, no matter how unhygienically disposed, are nevertheless to be reached by enlightenment and are not hopelessly barred from the fruits thereof, but conditions of living which stand in conflict with hygienic possibility and which are the result of fixed industrial and social institutions must be modified to whatever extent is necessary before this achievement in preventive medicine can be conspicuous.

In common with all questions involving the amelioration of conditions in which the industrial classes live and particularly involving the increased enlightenment of the whole people, this matter must be approached most effectively through the children. When we consider the three factors which are of primary weight in this warfare, this will be manifest. We must first have such habitation conditions as will not make the infection of the children an inevitable result. Conditions must be found whereby children can have a certain protection from infra-family transmission. This involves not only better habitations, but a different conception of domestic management, and this can be achieved only by a strong pressure in behalf of the children.

Second comes the spread of intelligence. It is very well recognized that in sociologic effort extending in its scope and prospect over a long period of time the point of advantage and attack is the child, and so it is that, in looking forward a generation for substantial results, we are quite justified in pinning our faith as to promise of those results upon the education of the child now coming up. Not only is the promise of mature intelligence through education of the child justified, but right along even during childhood years these little citizens exercise an immeasurable influence upon family life.

But above and beyond this is the third consideration. No problem is greater before the world to-day than that of instilling the essence of hygienic living. Assuming, if we may, for the moment, all our desiderata and all of the necessary physical conditions and possibilities as achieved, until the genius of the people has been reclaimed from the habitation type and restored to the out-of-door and air-loving type this question will not be solved. While recognizing certain apparently contradictory facts, such as the extreme susceptibility of savage tribes to tuberculosis and the relative insusceptibility of habitation tribes of our city dwellers due to what seems to be an acquired immunity, one is nevertheless justified in declaring that habitation life is essentially an artificial condition which must be met by appropriate corrections.

The notion of immunity incident to prolonged and intense exposure to infections may have a scientific interest, but even if it were sound, as a means of ridding the world of tuberculosis and of making life safe and agreeable it is not to be considered. The love of the out-of-door life, irrespective of its elevating and emancipating effects from a mental or moral standpoint, is perhaps the greatest safeguard of the people. In no way can such life, taste and habit be inculcated without affording oppor-

tunity, and we come immediately face to face with what is thought to be simply a civic problem, viz.: the establishment of out-of-door space, accessible to the public and offering such facilities and attractions as will lead the youth of the community to incorporate into its daily life a measure of its experiences.

The enlargement of the plans of outing, of out-of-door schools, of playgrounds, of supervised gymnasiums and all of the activities which can be brought to bear upon the development of the young, are of fundamental importance in this broad conception.

When we stop to consider that tuberculosis is only to be cured in its incipency, that whenever it is established and progressive it is not only to the individual a certain destruction, but to the contingent community a menace, and when we consider, in addition, the probability that an enormous part of the infection takes place in childhood, it leads us inevitably to the conviction that, from a public and sanitary viewpoint, efforts should be concentrated upon prevention.

The few suggestions foregoing, it seems to me, unerringly point to the conclusion that the successful war upon tuberculosis is a community matter rather than a medical matter and that, however great our duty may be as enlightened and expert molders of public opinion, we must unfetter ourselves from our special and scientific restrictions. We must enlarge our view and distribute our energies, in so far as we hope to be effective, into lines of sociologic research and effort and endeavor not only to become wise critics of method, but earnest cooperators in the work of social evolution.

100 State Street.

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## THE MANAGEMENT OF TUBERCULOSIS.\*

CLARENCE L. WHEATON, M.D.

CHICAGO.

The consideration of this subject is undertaken with a knowledge of the fact that the ablest minds of both the medical profession and laity have within a comparatively recent period of time contributed liberally to this topic of ever-increasing interest.

Repetition, however, may bring conviction, and the results already achieved in this field of medical science continue to be of far-reaching importance, of interest to the profession from a medical and humanitarian aspect, and to the laity from a social and economic standpoint. I believe that to-day we are more in accord than ever before in our views concerning the management of tuberculosis; the wild orgy of excesses and delirium of extremes prevails to a much less extent. Of the old theories and teachings we have retained all that is good and have endeavored to eliminate from the new that which is irrational and subjects the unfortunate victim of tuberculosis to widespread experimentation in the attempt to exploit so-called cures.

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In the management of tuberculosis and in an effort to combat this plague early recognition of the disease is most essential, and by early recognition we mean before ocular demonstration of the germ; when there is only a slight initial lesion in the form of infiltration limited to the apex or a small portion of one lobe, without tuberculous complications and with slight or no constitutional symptoms, gastric or intestinal disturbances or rapid loss of weight, slight or no elevation of temperature or acceleration of the pulse at any time during the twenty-four hours, expectoration small in quantity or absent. With pronounced physical signs could not the veriest tyro make the diagnosis, no highly refined knowledge being necessary, no hearing abnormally acute and no instruments of precision essential?

A recent observer in Colorado has submitted a report on seventeen hundred cases of tuberculosis. The average period of delay following the recognition of the symptoms referable to disease up to the time of the patient's arrival in Colorado was twenty and one-third months. Active extensive trouble in both lungs in 69.1 per cent., while 53.05 per cent. presented all the evidences of a profound constitutional disturbance, including the sepsis of secondary infection. In the management of tuberculosis medical climatology has come to play an important rôle. Climate, however, is no longer prescribed without regard to the circumstances of the patient or the stage of his disease. In the case of those who cannot afford the expense incident to a change of climate it opens the door to regrets that are likely to harass the mind when it most requires repose. Taken from his home and the association of his nearest connections who would have soothed his sufferings by a ready anticipation of all his wants, he finds himself in a strange land. I have witnessed in my long residence in Colorado the ill effects of sending a consumptive to a distant state penniless and with advanced consumption. I know that nothing can be more irrational.

For those who are properly equipped financially we recognize the value of the ideal climate, the one with the greatest possible amount of sunshine, a pure dry atmosphere, light winds and porous soil, with elevation sufficient to increase the respiratory act in depth and vigor.

In the management and care of the tuberculous the state must make provision for its unfortunates; it, indeed, owes something to its citizens; its tuberculous poor are worthy of every consideration, and it would appear a duty of the state to make proper provision for their care and if possible restore to health those incapacitated by disease, returning them to the commonwealth able-bodied citizens. The necessity and value of this provision can be impressed upon the laity by free popular lectures, such as recently inaugurated by the Chicago Medical Society. Indeed, more will be accomplished in this way than by political pilgrimages to state capitals with the hope of influencing the chief executive and legislature to act according to our views concerning sanatoria.

Could the knowledge of the facts we have gleaned concerning tuberculosis be impressed upon the laity, the executive veto of measures passed



for the common good so far as this disease is concerned would be exceedingly rare, and the wrangling of peanut politicians would forever cease when these public necessities were under consideration.

The prolongation of life by the suppression of preventable disease is of much greater value to the state than the cost of the means employed. The history of the therapeutics of tuberculosis as applied to the management of the disease presents varying extremes; various periods have been well represented. Cod liver oil at one time had few competitors; phosphorus, iron, the hypophosphites, phenol, quinin, creosote, we are all familiar with, yet more specific medication is eagerly sought. Notwithstanding our therapeutic excesses, science, we trust, may yet deliver us from the chaos of it all. Can we not recognize the possibilities in the treatment of tuberculosis by artificial auto-inoculation, according to Wright's theory of opsonins? In artificial bacterial auto-inoculations we undoubtedly possess therapeutic agents of more potency and specific value than anything heretofore employed in the treatment of disease.

In the management of tuberculosis, our efforts to limit the opportunity for infection are worthy of consideration. To those not familiar with the conditions to be met at the modern health resort, compulsory notification and registration will not appeal. Notification, however, will avail nothing without the application of other measures of control. At the last meeting of the American Medical Association the Section on Hygiene and Sanitary Science appointed a committee to draft a form of ordinance which might be used as a basis for legislation of municipalities regarding tuberculosis. Dr. S. A. Knopf, of New York, Dr. Charles Browning, of Monrovia, Cal., and the writer were appointed members of this committee. The following form of ordinance has been drafted:

An ordinance of the city of \_\_\_\_\_, relative to the prevention of tuberculosis as a communicable and preventable disease, providing for the supervision of all cases of tuberculosis by city health board, requiring physicians and householders to report to city health board all cases of tuberculosis, and prescribing a penalty for the violation of the provisions hereof.

The Mayor and Board of Trustees of the city of \_\_\_\_\_ do ordain as follows:

Section I.—Every practicing physician in the city of \_\_\_\_\_ shall report in writing to the Board of Health of said city the full name, age, address and such other data as may be required by said Board of Health of every person afflicted with tuberculosis who has been attended by or under direction of such physician, for the first time, within one week thereafter.

Sec. II.—Every householder, manager, proprietor or keeper of any boarding house or hotel shall report in writing to the Board of Health of said city any person in any house or hotel under his or her charge supposed to have or to be afflicted with tuberculosis. Such report shall be made within twenty-four hours after such person shall have become an inmate, resident, boarder or guest at such house or hotel, and all known facts concerning the illness of such person shall be reported. And it shall

be the duty of said householder, manager, proprietor or keeper of any boarding house or hotel to report from time to time the condition of said patient, as may be required by the said Board of Health.

Sec. III.—Every person having knowledge of the existence of any person having or being afflicted with tuberculosis whom he has reason to think requires or needs the attention of said Board of Health may at once report to said board all known facts concerning the illness of such person so afflicted.

Sec. IV.—Every person in charge or control of any dwelling, apartment, house or other premises in said city shall forthwith report to said board in writing the removal of any person afflicted with tuberculosis from such dwelling, apartment, house or place.

Sec. V.—Every physician, undertaker, householder or proprietor or keeper of any boarding house or lodging house having knowledge thereof shall forthwith report in writing to said Board of Health the death of every person who dies from or while afflicted with tuberculosis.

Sec. VI.—Immediately after the removal or death of any person having or being afflicted with tuberculosis the premises, furniture and belongings occupied and used by said person shall be thoroughly disinfected, cleansed and renovated by such method and in such manner as may be approved by said Board of Health.

Sec. VII.—Any information obtained by said Board of Health under the provisions of this ordinance relative to the identity of the individual afflicted with tuberculosis shall be strictly private, and shall not be disclosed or made public, nor shall said Board of Health disclose or make public the names of any persons reported as tubercular.

All persons reported as tubercular shall be described by number and not by name in public records made thereof, the names of such persons to be nevertheless kept in a separate book by said Board of Health, together with the appropriate number as contained in said records or reports, for the use of said Board of Health only, and for transmission from time to time to their successors.

Sec. VIII.—Said Board of Health shall prepare printed blanks, the expense of which shall be borne by the city of \_\_\_\_\_ for making reports as herein required, and shall furnish and supply the same upon demand, and it shall prepare and furnish in like manner suitable circulars of information for persons afflicted with tuberculosis, and those with whom they reside or live, and copies of such circulars shall be supplied to all practicing physicians in said city for free distribution to their patients, and said circulars shall be placed in the homes of all persons reported to said Board of Health and of all persons making such reports.

Sec. IX.—Said Board of Health shall not make visits to persons having or being afflicted with tuberculosis, reported by such physicians, nor shall any sanitary surveillance of such cases be assumed unless the person resides in a tenement house or lodging house, or unless the attending physician requests that an inspection of the premises be made. In no case where the person resides in a tenement house shall any action be taken if the attending physician requests that no visits be made by a repre-

sentative of said Board of Health, and if he himself is willing to deliver circulars of information, or to furnish such equivalent information as is required to prevent the communication of the disease to others.

Sec. X.—If at any time, in the judgment of the Board of Health, it shall become necessary for the public safety that said Board of Health shall assume sanitary surveillance on account of the negligence or unwillingness of the physician, or attendant, who assumes the duties of giving instruction, as provided for in the preceding section, then said Board of Health shall assume such surveillance and no person shall interfere with or obstruct the entrance, inspection or examination of any building or house or the occupants thereof by the representative of said Board of Health, when any case of tuberculosis has been reported as existing in said house or dwelling.

Sec. XI.—Every person violating any of the provisions of this ordinance shall be deemed guilty of a misdemeanor, and upon conviction shall be punished by a fine not exceeding ———, or by imprisonment in the city jail not exceeding ——— days, or by both such fine and imprisonment.

Sec. XII.—This ordinance shall take effect and be in force from and after the — day of ———, 190—.

The problem of child labor should be considered in connection with this subject; the closest scrutiny should be placed over children of tender years who enter into the struggle for existence; labor physically injurious and hours that tax the child's delicate powers should be properly adjusted. The preservation of the child means strengthening of the race, with all that may accrue to the future generation.

In conclusion, problems of infinite variety will demand solution, yet, broadly speaking, our efforts in the management of tuberculosis should be to reduce the opportunities for infection, promote the individual powers of resistance, create the most favorable environment for the afflicted, and finally utilize all the educational influences at our disposal concerning this disease.

With all our enthusiasm and knowledge of the nature of this study, we must exercise wisdom, discretion and charity, laboring with the people and for the people, to the final end that we of this generation may witness the elimination of the most important disease affecting mankind.

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## SANATORIUM TREATMENT OF TUBERCULOSIS.\*

E. H. BUTTERFIELD, M.D.

OTTAWA, ILL.

### BRIEF OUTLINE OF SANATORIUM MOVEMENT.

One hundred years ago Rush anticipated our methods of to-day and half a century later the elder Bowditch, having contracted consumption, cured himself by the application of our own well-formulated principles. When Bodington, of Warwickshire, England, in 1840, enunciated his

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views on the treatment of pulmonary tuberculosis, seeking to convince his medical colleagues that a life spent in the open with plenty of substantial food and the avoidance of excitement was the correct method, he was immediately pounced upon and not even given a courteous hearing.

Later MacCormao and others raised their voices against the pernicious habit of keeping consumptives housed in close, poorly ventilated, overheated rooms, still further using remedies which depleted and diet that starved. Later on Brehmer, in 1859, established the sanatorium at Gorbardsdorf, elaborating his system of treating tuberculosis, which has gradually come to be recognized as the rational method of opposing the malady. Trudeau can be termed the exponent of a most wonderful crusade in this country, and how reluctant we were to take up with the new doctrine! So cheap and abounding a remedy as fresh air and so common an agent as good, wholesome, nourishing food, and so simple a device as rest were looked upon as a fantasy when compared with those more elaborate methods of saturating with cod liver oil, creosote, cough mixtures, hypophosphites, whisky and a multiplicity of drugs, the futility of which was usually demonstrated by the ill-timed and irresponsible advice at the last to change climate without reference to physical or financial conditions.

#### SOME REQUIREMENTS AS TO CONSTRUCTION AND LOCATION OF A SANATORIUM.

First of all, the site and the surroundings should be ideal. Easy of access, but away from the center of population, on an elevated and sloping site overlooking, if possible, a sweep of scenery. A sunny exposure, extensive grounds, well wooded, and affording ample space for exercise of different kinds. The soil should be dry and permeable, and the water supply abundant. Comfortable accommodations must be provided. A separate room or, far better, a tent cottage, which can be freely ventilated and properly screened. An administration building equipped with modern conveniences and with facilities for perfect light, ventilation and sanitation. Dust and smoke should be avoided as far as possible, and the buildings should be so arranged that medical supervision can be readily and quickly exercised. Facilities for the quick and effectual destruction of all infected material should be provided. No provision so far as buildings are concerned are necessary for amusement other than an entertainment room, which may be made to serve the purpose of a library or assembly room, containing perhaps a piano, books, periodicals, easy chairs and a wide, open fireplace. Games, such as tennis, billiards, etc., which involve much movement of the arms or to lead to excitement, should not be provided, although a modified golf in selected convalescent cases, if patient is properly controlled, is beneficial. Open-air galleries, open to the south and east, are of service in stormy weather, where patients may sit out and take the treatment. A very important adjunct to the equipment of a modern sanatorium is an infirmary which may be a modification of the King lean-to. The acutely ill have by this plan the special advantages of the modern hospital, combined with open-air methods.



All facilities should be provided for the treatment and clinical observation of a patient by the aid of a properly equipped laboratory.

#### EARLY DIAGNOSIS AN IMPORTANT FACTOR.

Without question the management of tuberculosis must be along sanatorium lines. That the best results are obtained by these means can not be contradicted. Early diagnosis can alone lead to early treatment, and, as the more successful treatment implies an early diagnosis, it follows that the student of medicine should inform himself as to the methods of recognizing the earliest manifestations of this formidable malady. Unfortunately the average student and interne has but meager opportunity for clinical observation of incipient cases in the hospital wards, for these are barred. This lack of clinical experience is no fault of the student, but the general practitioner's responsibility is great, in view of the fact that most of the earlier signs and symptoms of this disease are misinterpreted or overlooked on account of superficial examination and hasty observation, rather than lack of knowledge.

Medical reports of sanatoria furnish positive proof of the value of early treatment, and the percentage of favorable results, as a rule, stands in inverse proportion to the duration of the disease, as well as to its extent. Volumes have been written on the importance of early treatment in these latter days. Only a few comparatively are admitted to sanatoria under that classification. "What we plead for is, that the consumptive shall be taken care of at the right time, in the right place, until he is well, and not at the wrong time, in the wrong place, until he is dead."

Treatment in a sanatorium implies to the highest degree the great triad, fresh air, rest and an abundance of food. The application of these familiar agencies seem simple, but in reality require precision, judgment and faithful, painstaking, medical supervision and control. No one of these agencies is potent for good without the other. The difficulty is not the knowledge of the principle itself, but the correct application of the same.

#### FRESH AIR.

As to fresh air it must be unlimited in amount, certainly not to be delivered on the wings of a whirlwind, but, if atmospheric conditions permit, practically always in the open.

#### REST.

Rest in part or absolute rest depends upon conditions. Absolute on admission to the sanatorium. The reliable index for the application of this powerful remedial measure depends upon the strength of the patient, the character of the pulse, the condition of the circulation, and, most important of all, the temperature.

#### EXERCISE.

Exercise plays an important rôle in the treatment of the afebrile consumptive. Other things being equal, the longer time required to reduce the temperature to normal the more essential it is to postpone exercise

until a week or so has elapsed without 99 degrees being exceeded. Carefully regulated walks serve the purpose of strengthening the flabby heart and muscular system and promoting digestion and assimilation. A patient with a rapid heart, even though the temperature and condition of the lungs be satisfactory, should never be lost sight of, as it is one of insecurity.

Exercise should be commenced tentatively. The extent must be exactly regulated and effects carefully noted. No feature of the treatment requires more care and discrimination than the matter of exercise, especially when the patient is making rapid improvement. He is being constantly guided in all his actions by his feelings, which is always dangerous. Patients not infrequently lose more by a few minutes' over-exertion than can be regained in days or even weeks. The weight gained by full feeding may be an increase of fat rather than of muscle, and the final indication is the hardening off stage. Hill climbing is of especial value for patients who are fat and much over weight; the length and gradient of the walk will, of course, depend upon the strength of the patient and the condition of the chest.

#### FOOD.

The feeding of the tuberculous patient is a problem which demands the utmost precision, and precision is the secret of success. Food to be of nutritious value, the amount and the character must be judged by the digestive capacity of the stomach. Gastrointestinal conditions, as well as idiosyncrasies, must be taken into account. In brief, the food must conform to the requirements of the system, and it may be said that the amount of toxemia and tissue destruction bears a direct relation to the necessity for increased feeding. That diet is best which furnishes the greatest amount of nourishment and which is the most easily digested and assimilated. In this, as in all phases of the management and treatment, each case must be individualized.

#### HYDROTHERAPY.

Cool or tepid sponging of the body surface, followed by alcohol rubs, are of service in the febrile and debilitated. In comparatively quiescent cases the cool sponge or plunge bath may be taken every morning. This usually has a stimulating effect on the general system, minimizes the susceptibility to colds, promotes cutaneous circulation and increases tissue resistance. There are some contraindications, however, as recurring hemoptysis, general debility and active pulmonary mischief.

#### A WORD AS TO MEDICATION.

Overdrugging is a bad habit, easy to acquire, but hard to cure. At the last session of the National Association at Washington the report of the Committee on Medication was very brief, deploring the use of many drugs and selecting only those whose therapeutic value has been proven. In brief, some forms of iodine in the glandular type; freshly prepared Bland's and Fowler's solution in anemia; nitrites in overtension of arteries associated with hemoptysis; atropia, agaricin and camphoric acid in night

sweats; in addition to these drugs, sponging the patient with weak solution of acetic acid. Diarrhea not to be controlled with opium and astringents, but better results to be obtained by the judicious use of mild purgatives in form of salines, castor oil, calomel and enemas.

Flick maintains that small doses of magnesium sulphate, five to ten grains every hour or two, will do more for a persistent diarrhea than any therapeutic measure he has tried, other than diet. I can not, however, endorse his views relative to the administration of fifty drops of creosote three times a day for mixed infection, and have yet to observe any drug or sera which has acted specifically upon this perplexing complication.

For the control of cough the committee were not in favor of the routine rule of giving opium or its alkaloids, on account of its action on the secretions, except in cases of extreme severity accompanied by exhaustion.

#### SERA AND VACCINES.

The treatment of mixed infections with streptolytic or anti-streptococic serum, in the main, has not been attended with much success. The tentative and empirical trials made with it makes it difficult to prove, in many cases, whether the good results are due to the serum itself or to other measures employed. In two out of fifteen of my own cases when the serum was administered, the results were rather striking, the temperature curve after a number of injections dropping practically to normal. Absolute rest in the open had been employed with negative results for weeks. Both cases were classified "moderately advanced," with clinical and microscopic evidences of a mixed infection.

#### TUBERCULIN.

In spite of adverse opinion relative to the therapeutic value of tuberculin, there is convincing evidence of its growing popularity. It is safe enough to state that in properly selected cases and in proper doses, at proper intervals, it does no harm. We must admit if we accept the preponderance of proof that the use of tuberculin is in accord with the modern theories of immunity, that theoretically tuberculin is capable of increasing the natural defenses of the body, and that clinical experience in its administration ought to influence us in favor of its use.

Twenty-three cases since Sept. 14, 1906, have been under observation at the Ottawa Tent Colony. Of this number, six patients have taken, at the end of twenty-four weeks, a maximum dose of eighteen milligrams of Kochs' new tuberculin, without a reaction. We would not be justified in forming a definite opinion as to results based on so short an experience.

The opsonic index in normal sera varies in different healthy persons and at times in the same person. As to its value as a guide, in the administration of tuberculin, Brown, of Saranac, places the chances for error at 15 to 20 per cent. The difficulty of technic, as well as of application, is noted by many laboratory workers.

#### TIME ELEMENT A POINT IN TREATMENT.

The greatest menace to the sanatorium movement in this country is the popular misconception as to length of time necessary to bring about a

satisfactory result. The responsibility for failure in many cases rests upon the patient and his friends, from whom he should pray to be delivered in the majority of instances. Patients are so often satisfied on admission that they have only a "bronchial catarrh" or "throat trouble" or that they have a "weakness of the lungs," when, in fact, the disease is advanced, or even far advanced.

A popular and erroneous idea has gone forth that three months is the time limit for a cure. This is based upon the reports of certain German sanatoria, where none but incipient cases are treated and where the usual term of treatment is three months. This term proves very often too short for incipient cases, and the public have been led to believe that a three months' sojourn at a sanatorium will cure, regardless of the stage. What a rude awakening the future will have in store for such vagarists! No fixed time can be set, and no definite statement should be made as to prognosis in any case of pulmonary tuberculosis.

#### CLIMATE.

As Musser has so tersely stated, "Climate for many years has stood at the head of the list in the management of tuberculosis, in the selection of which the profession was torn by conflicting doubts, now here, now there, in accordance with the energies of the devotees of the respective region. Does it not seem strange, indeed, that that which great men have plead for for years and have sacrificed time and strength to prove by experiment and practice only slowly filtered into our life work? The substance of their pleadings makes our line of action to-day; conservation of strength brings about tissue resistance, adaptability and cure."

#### RECAPITULATION.

1. It is important to consider the construction and location of sanatoria as essential in the successful treatment.
2. The necessity for early diagnosis and prompt treatment both from a humanitarian and economic standpoint.
3. The principles of treatment are not easy of application and it is necessary to individualize.
4. The public is dangerously educated as to the curability of consumption and the popular misconception as to time limit. The word (cure) should be used with caution.
5. Climate is not an essential in the treatment.

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## SOME NERVOUS AND MENTAL PHASES OF TUBERCULOSIS.\*

FRANK PARSONS NORBURY, A.M., M.D.

JACKSONVILLE, ILL.

The literature of medicine pertaining to tuberculosis has, since the era-marking studies of Koch, been characterized largely by inquiries into the origin, clinical pathology and treatment of the disease. Vast, indeed, is the accumulation of this literature, but, in spite of its extent, comparatively little aside from tuberculous meningitis has been contributed to the phases which concern neurology and psychiatry.

In this country no systematic and continuous studies of this department of clinical medicine had been undertaken until the establishment of the magnificent and well-endowed Henry Phipps Institute for the Study, Treatment and Prevention of Tuberculosis, in Philadelphia, when a neurologic department was established and placed in charge of that enthusiastic, conscientious and well-trained neuro-pathologist, Dr. D. J. McCarthy, whose work in the William Pepper Laboratory of the University of Pennsylvania had already won for him distinction in clinical pathology.

In the two annual reports of the Phipps Institute which have been published since this department has been organized, the foundation has been laid for scientific research work of a high order which, as practical and valuable contributions to clinical medicine, will aid in the elucidation of many of the obscure problems of clinical neurology. Inasmuch as the work already accomplished at Phipps Institute has been so systematically detailed in the reports published, and inasmuch as it represents the latest and, I believe, as far as it goes, the best contribution made to the clinical pathology of tuberculosis in the field of neurology and psychiatry. I have thought best, therefore, to summarize the observations of Dr. McCarthy and his co-workers in this paper.

The natural history of the disease, tuberculosis, in its evolution, is insidious, thus giving obscurity to its symptomatology, and confusion results in differential diagnosis. The necessity of proper clinical classification is at once apparent, and to further this end, to avoid confusion and to systematize the observations, both clinical and pathologic, Dr. McCarthy has adopted the following classification which, for thoroughness in detail and yet practical in its arrangement, is characteristic of Dr. McCarthy's excellent work.

## ORGANIC LESIONS.

## Affections of the Brain, Meninges and Skull.

A. Diseases of the bones of the skull, with secondary involvement of the meninges.

B. Lesions of the meninges.

1. Pachymeningitis (by extension).

2. Lepto-meningitis: acute, subacute, chronic.

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## C. Lesions of the brain.

1. Acute tuberculous encephalitis.
2. Chronic tuberculous infiltration.
3. Localized encapsulated tuberculosis (Tyroma).
4. Tuberculosis of the chorioid plexus.
5. Ependymitis.
6. Hydrocephalus: external, internal.

## Affections of the Spine, the Spinal Cord and Its Meninges.

A. Arthritis: tuberculous arthritis, rheumatoid toxic arthritis, pulmonary osteo-arthritis.

B. Pott's disease—spinal caries.

## C. Lesions of the meninges.

1. Pachymeningitis: external, internal.
2. Leptomeningitis: acute, subacute, chronic.
3. Pseudo-exudates on the meninges.

## D. Lesions of the spinal cord.

1. Myelitis: acute, subacute, chronic.
2. Tuberculous infiltration of the cord.
3. Myelomalacia of vascular origin.

## Affections of the Muscles.

A. Atrophic degeneration.

B. Muscular dystrophy.

C. Myositis: acute, subacute, chronic.

## Lesions of the Peripheral Nerves.

A. Neuritis.

B. Tuberculous infiltration of the peripheral nerves.

## FUNCTIONAL DERANGEMENTS.

## A. Cerebral.

1. Mental attitude.
  - a. Hopefulness.
  - b. Hopelessness.
  - c. Depression.
  - d. Irritability.
  - e. Suspicion.
  - f. Impressionability—receptivity to suggestion.
2. Cerebral asthenia: memory, sleep, dream-states.
3. Sexual manifestations: depression, excitability, perversion.
4. Insane states.
  - a. Those essentially tuberculous.
    1. Paretic type.
    2. Clouston's type, with elation or depression.
  - b. Those dependent on depression of the body nutrition.
    1. Mania.
    2. Melancholia.
    3. Dementia præcox.
    4. Delusional insanity.
    5. Paranoia.
    6. Terminal hallucinatory delirium.
    7. Hysterical insanity.

5. Epilepsy.
  - a. Grand mal.
  - b. Petit mal.
  - c. Psycho-sensory epilepsy.
  - d. Jacksonian epilepsy.
6. Ocular manifestations.
  - a. Nystagmus.
  - b. Nystagmoid movements.
  - c. Failure of muscle balance.
  - d. Spasmodic conditions of eye muscles, extrinsic intrinsic.
7. Reflex disturbances in the distribution of the cranial nerves: Chvostek's phenomenon, tremors of face and tongue.
8. Cephalalgia.

B. Spinal.

1. Spinal sensory disturbances.
  - a. Paresthesias.
  - b. Hyperesthesias.
  - c. Anesthesias.
  - d. Referred pain.
2. Spinal motor disturbances.
  - a. Spinal asthenia; fatigue manifestations referred to the extremities and more especially to the trunk.
  - b. Paralysis of spinal origin.
  - c. Reflex atrophies: reflex joint atrophy, clubbing of fingers (?).
  - d. Tremors: toxic, fatigue; intention, non-intention; local, general; rhythmic, arrhythmic.

- |                                       |   |  |
|---------------------------------------|---|--|
| 1. General condition of reflexes..... | { | increased.<br>decreased.<br>absent.  |
| 2. Special reflexes.....              | { | Babinski.<br>Ulnar.<br>Common extensor.<br>Basal thumb.<br>Oppenheim.<br>Pharyngeal. |

e. Clonic manifestations: ankle clonus, quadriceps clonus.

C. Sympathetic system.

1. Hyperidrosis.
  - a. Local.
  - b. General.
2. Edema: circumscribed, diffuse, red, cyanotic.
3. Pupillary phenomena: inequality, myosis, mydriasis.
4. Graves' syndrome: exophthalmos, tachycardia, tremor, goiter, diarrhea, v. Graefe symptom, Stelwag's symptom.
5. Tachycardia.

6. Diarrhea, without intestinal tuberculosis.
7. Subcutaneous hemorrhage from slight trauma.
8. General vasomotor tone.

The very comprehensive studies made by Dr. McCarthy and based upon this classification have been a distinct addition to our clinical pathology of the disease. I shall not attempt to cover this whole field of neurological work, but shall consider such parts as are of special clinical interest to us. Of these, tuberculous meningitis stands foremost. It has been recognized clinically since Gerhard, of Philadelphia, in 1832-33, established its anatomical and clinical basis. It is the one tuberculous affection of the nervous system which is of paramount importance because of its universal occurrence and the gravity of the prognosis attached to it. When we remember that it is essentially a disease of childhood, that its occurrence in adult life is comparatively rare, it becomes of clinical interest from the standpoint of its etiology, pathology, diagnosis and possible prophylaxis, while its treatment is negative in the light of all past and present experience.

Tuberculous meningitis is looked upon by pathologists as a secondary affection; and yet, as Koplik ("Diseases of Children," page 252) says: "It is not always possible to determine the primary focus of infection." Again, it is rare to find the meninges alone involved, although cases occur in which the meningitis appears to be primary in origin. In children we usually find the primary focus in the bronchial, mesenteric or cervical lymph glands, while in adults we find disseminated lesions in the lungs, liver, peritoneum and in the bones. The tubercle bacilli find their way to the meninges either through the lymph channels or the blood stream. The former route is perhaps more frequent, while the latter route, which has been disputed by good authorities as not always a possibility, seems, in the light of modern clinical pathology, to be more frequent than has heretofore been accepted.

McCarthy reports a unique and interesting case in support of the blood stream route (Phipps Institute Report, vol. ii, p. 95). The lesions were typical of tuberculous meningitis confined to one cerebral hemisphere and more particularly to the distribution of the Sylvian artery. The case represents, from a pathologic standpoint, the method of infection of the cerebral meninges from a pulmonary lesion and the localization of the inflammation along one cerebral artery is evidence of the transmission of the infection through the arterial circulation. The tuberculous lesions were limited to the distribution of the blood supply of the middle cerebral artery of one hemisphere.

Tuberculous meningitis, too, we must remember, is usually basilar, and, if the convexity is affected, it is usually following involvement of the base, which did not exist in the case, however, reported by McCarthy. McCarthy describes two distinct types of acute tuberculous meningitis, entirely different in their gross and microscopic pathology (p. 99, vol. ii): "In one group of cases, the meninges are in a state of congestion and a large number of pin-point miliary tubercles are found scattered along the course of the blood vessels. In the other, there is a thick, plas-



tic, semi-purulent exudate mainly confined to the base of the brain and most extensive in the intercerebral space. The first group is the type found in children where the primary source is a non-suppurating tuberculous focus. This type is found in advanced cases of pulmonary tuberculosis. The second group of cases is found with advanced cases with cavity formation and mixed infection. The pathologic conditions of the second group is in all probability due to mixed infections, as tubercles of the pia may exist without the gross appearance of meningitis, while the meningitis itself, the degree of inflammatory process, seems not to be dependent upon the number of the tubercles. Again, we know that meningitis is in all probability due to the deposition of the tubercle bacilli in the vessels of the pia. The degree of inflammation is difficult to determine clinically; hence, the pathologic subdivisions of subacute leptomeningitis and chronic leptomeningitis are of interest more in the clinical pathology of meningitis than in clinical diagnosis.

The symptoms of tuberculous meningitis are more or less progressive, the prodromal period extending over days or weeks and characterized by varying symptoms, according to the age of the patient. There usually is in evidence a progressive loss of flesh, with loss of appetite, noticed in the infant by refusal to nurse, and in older children and adults, with diminished fitful appetites. A low grade of fever, slight and irregular, some restlessness, irritability and apathy are shown, also alternating diarrhea and constipation. Headache becomes a feature, also vomiting of the explosive type and from inadequate cause, which in infants may be followed by a convulsion, with loss of consciousness. Next follows, but not in regular order, the symptoms of basilar involvement, viz.: strabismus, retraction of the head, rigidity or irregular movements of the extremities. Vomiting and convulsions may become more pronounced to end in coma, with irregular respiration, slow, irregular pulse and with the increase of pressure symptoms, deepening coma and death. In children we may have the peculiar cry which I have also seen in adults with beginning of stupor. This cry varies from a moan to distinct, piercing shriek, and is especially noticeable when the patient is moved or even touched. The terminal stages, viz.: the stupor, the opisthotonos, the retraction of the abdomen, the irregular and finally Cheyne-Stokes respiration; the gradually rising but irregular temperature; the increased and irregular pulse, are symptoms which, alas! are too familiar to all of us.

The diagnosis of the disease should not be difficult if we but consider in detail the history, examine carefully the general symptoms, including the palsies of the cranial nerves, the Kernig sign and observing differential signs and symptoms that we may differentiate typhoid fever, pneumonia, broncho-pneumonia in infants, septic infections and last, epidemic cerebrospinal meningitis, which will demand lumbar puncture; and, too, the consideration of the duration of the prodromal symptoms and the severity of the illness.

Our treatment, as Bramwell (Allbutt's Practice, vol. vii, p. 486) emphasizes, is "preventive, which includes everything which is expressed in good hygiene."

Localized encapsulated tuberculosis, in its two forms mentioned by McCarthy, is of interest clinically, as well as pathologically, as it involves both the man and beast. These two forms of tuberculosis of cerebral tissue, independent of tuberculosis of the meninges, are infiltration and the local encapsulated form (tyroma). The first may be in direct association with the meninges or independent of it. "This is seen in its purest form in the nervous system of cattle. The extension of the process is along the blood vessels and the associated lymphatic capillaries. There is little tendency to the formation of giant cells and to caseation." The local encapsulated form (tyroma) is of much more frequent occurrence in the human being than is the other, and may occur as single or multiple tumors. The encapsulation is not complete; it is the thickening of the neuroglia which gives the appearance of a capsule. The tumors which result from so-called encapsulation are not infrequent in children, according to Starr, and vary in size from a pea to a hen's egg and are usually situated in the posterior fossa. McCarthy reports two cases found in adults, one diagnosed upon the clinical history and findings as healed tuberculous process of the cerebellum, which was confirmed by the pathologic findings. The second was an incipient case of tuberculosis in a boy, 8 years of age, diagnosed and localized as tuberculosis of the left lobe of the cerebellum. This case came to operation by Dr. Charles H. Frazier, a part of the left lobe of the cerebellum was removed, no tumor was found on first operation, but later sarcoma developed in the cerebellum.

Meningo-encephalitis is a lesion that is also found in tuberculous cases as a complication of meningitis or possibly as a distinct lesion. McCarthy reports four cases out of one hundred and ten brains examined (vol. ii, p. 101, Phipps Institute Report) where there was localized cortical and subcortical hemorrhagic softening secondary to tuberculous lesions of the meninges. "Sections of the pia-arachnoid establish the presence of small caseating tubercles containing tubercle bacilli over one of these areas (leading McCarthy to conclude) that the primary lesion is of local inflammatory tuberculous lesion of the pia-arachnoid, with secondary involvement of the cortex, either by direct extension or, more properly, a local interference with the local cortical circulation by obliteration of the capillaries extending into the cortex from the meninges."

Ependymal changes and hydrocephalus become of importance in both clinical and pathologic studies of tuberculous diseases of the brain. McCarthy gives extended studies of these disorders in his report which are of interest and value.

The spinal cord lesions and spinal meningeal involvement and ganglion-cell degeneration of toxic origin found in tuberculosis are of clinical importance, and, if time permitted, I would like to discuss these phases. I will take time, however, to mention the paralyzes due to tuberculosis of the nervous system as grouped by McCarthy (vol. ii, p. 117).

A. Those caused by parenchymatous neuritis, in which the nerve fibers become degenerated without evidence of a true inflammatory process are presented.

B. Inflammatory interstitial neuritis, in which all the symptoms and pathologic manifestations of an acute inflammatory process are presented.

C. A complex group, occurring immediately before death, in which the paralysis had first presented the clinical characteristics of a parenchymatous neuritis, but in which there is a tendency to involvement of successive groups of muscles, giving an ascending type and probably due to toxic involvement of both the peripheral nerves and the spinal cord.

D. Pressure paralysis, usually involving the perineal nerve as it curves round the head of the fibula, and subject, at that point, to pressure when the patient remains for a long time in one position, resting on the external surface of the leg.

The paralysis due to involvement of the central nervous system are (McCarthy, vol. ii, p. 118):

A. Those due to acute inflammatory processes of the meninges, such as tuberculous cerebral or spinal meningitis.

B. Hemorrhagic encephalitis secondary to meningitis or independent of it.

C. Paralysis of cerebral origin secondary to infiltrating or encapsulated tuberculous lesions.

D. Paralysis of cerebral origin due to localized areas of softening, secondary to local infiltrating processes of the meninges, cutting off the cortical circulation.

E. Paralysis of spinal origin from tuberculous tumors of the spinal cord.

F. Paralysis due to internal or external pachymeningitis, secondary to Pott's disease. The paralysis is due partly to an inflammatory infiltration and partly to pressure.

G. Paralysis due to tuberculous myelitis, which may be diffuse and infiltrating in type or localized to one or more segments. It may be secondary to obstruction of the circulation of these segments by active arterial disease.

H. Paralysis due to widespread toxic degeneration of the ganglion cells of the anterior horns of the spinal cord (Landry's paralysis).

Differentiation of these groups of paralysis depends upon a careful study of the symptoms present in the individual case.

McCarthy reports a case of Landry's paralysis occurring in a case of pulmonary tuberculosis of four years' standing. The course of Landry's paralysis was rapid, as is usual in the disease, death following eleven days after the first appearance of the symptoms of the disease. I had a similar case six years ago where Landry's paralysis developed in a lady patient, aged 26, school teacher, with pulmonary tuberculosis of three years' standing. She was in Colorado at the time of her last illness and death. Landry's paralysis in this case ran its course in six days.

The clinical psychology of tuberculosis has always interested me, and I have taken pains to follow as closely as possible the mental attitude of cases coming under my observation. Nothing definite or systematic, however, was attempted on my part and as a consequence my observations have been merely casual. It is a pleasure to note that at the

Henry Phipps Institute this phase of tuberculosis is being studied systematically along clinical psychologic lines. McCarthy's work in this field, I believe, is going to be epoch marking, in that it has already reversed the almost universal belief that tuberculous patients were exceedingly optimistic, hopeful and developed euphoria quite beyond the most sanguine expectations. McCarthy says it is difficult to determine the mental attitude of the patient because of the change of disposition manifested in most cases after the disease has well developed. Irritability, tendency to discontentment with immediate surroundings, all of which are more or less accentuated by a certain amount of worry in relation to family and other matters, complicate the determination of the mental attitude in such a way as to make many of the records of little value. Dr. Horace Carnecross has made a special report on "The Mental Attitude in Tuberculosis" (vol. ii, p. 137, Phipps Institute Report), in which he says: "The impression one gains after a series of inquiries from the patients themselves as to their mental state is that the greater number are more or less depressed, though they still retain the hope of improvement or cure. They do not express excessive trust in their future physical welfare, and when they have expressed unreasonable confidence it has usually been due to ignorance of their true physical condition. On the other hand, that they should be depressed there is every reason to expect, because of the lowered vitality and the knowledge of bodily harm they are undergoing, together with altered circumstances, is in itself sufficient to cause depression.

In order to truly grasp the fulness of the psychologic aspect of the case, it is necessary to know the original temperament of the patient, which in many cases has been that of buoyancy, a sense of well-being, etc. The question, then, as Carnecross presents it, is, not are tuberculous people optimistic, hopeful or cheerful or anything else, but do they undergo a change of mental state? In answering this, it is presumed that chronic illness rather than tuberculosis, specifically, may be responsible for the change. But that there are distinctly morbid psychologic states which can not be classified as insanity is beyond doubt true, especially in the latter stages. The commonest picture is that on which the patient is morose, irritable, quick to suspect, ready to find fault, perverse, antagonistic, sometimes almost abusive, perhaps highly emotional, skeptical, pessimistic and difficult to control. Dr. McCarthy believes that tuberculous patients reflect the mental attitude of the physician in charge of the case, optimistic if the physician is of a hopeful disposition and depressed if he is skeptical.

The insane states encountered in tuberculosis have been studied by a number of observers, dating back to the time of Esquival. The more recent literature, especially of French writers, has given a clinical classification to the insanity of tuberculosis. All varieties of insanity have been encountered, but Clouston, in his analysis, says that "the most common form is that of suspicion," a paranoid state in the classification of to-day.

McCarthy divides the insane states met with in tuberculosis into two



classes: First, a group peculiar to itself; second, a group including the usual types of insanity determined by a lowering nutrition. In the first group are found patients who may be absolutely hopeless and yet be happy and contented in this knowledge. When they are hopeful they are very hopeful, and in consequence this mental attitude leads to unreason. They belong to the allied paretics, and for this reason are called the paretic type. Another class are those of depression, which may eventuate into melancholia, morbid suspicion, persecution, etc., being the class described by Clouston.

In the second group are found all of those forms which are associated with lowered nutrition, viz.: mania, melancholia, dementia præcox, hysterical insanity and delusional insanity. I have met quite a number of insane people ill with tuberculosis and have noticed this association in early stages of tuberculosis, and later in the terminal dementia stages it is not uncommon, but here it is the consequence of the dementia.

Time will not permit further discussion of this subject, which is one of great interest and becoming more so as we learn more of the clinical pathology of the disease, tuberculosis. I have tried to cover the subject assigned me by the officers of this Section as gleaned from current knowledge of the disease, as well as from my own limited experience in the detailed study of the neurologic and psychologic phases of tuberculosis.

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## TUBERCULOSIS OF THE OCULAR STRUCTURES.\*

CASEY A. WOOD, M.D.

Professor of Ophthalmology, Northwestern University.  
CHICAGO.

Although it is universally known that tubercular processes invade the eye, the extent and frequency of that invasion are not generally recognized. This ignorance is by no means confined to the general practitioner; it is within quite recent years that ophthalmologists began to realize not only that ocular tuberculosis is relatively a common disease, but that many affections of the eye, now believed to be tubercular, were long attributed to other causes.

Almost every one of the numerous tissues and organs that compose the external ocular apparatus may be attacked by tuberculosis. If this be true, it will readily be understood that in a paper necessarily limited, only a cursory or general statement can be made regarding this interesting topic. I shall endeavor to confine my remarks to that part of the subject most likely to be of interest to others than ophthalmologists. A convenient division of ocular tuberculosis for the purpose of this paper is into extra-ocular and intra-ocular tuberculosis.

*Extra-ocular Tuberculosis, Tubercle of the Lid Skin.*—The tubercular character of lupus has long been known. Although the bacilli are present, they are demonstrated with much difficulty (especially in the microscopical sections) and inoculation experiments are often required to

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complete the diagnostic inquiry. The nodules do not differ materially in their inception, progress and complications from dermal tuberculosis in other localities.

*Tubercle of the conjunctiva* is probably much more common than is generally believed. I well remember, some ten years ago, having this fact practically demonstrated to me by my friend, Dr. Herman Knapp, who pointed out two cases in his clinic, diagnosed as phlyctenules of the conjunctiva, which were shown to be tubercles. In this connection it is well to remember the groupings of Sattler and Eyre, who, in 1890-1891, classified and described the various appearances of the conjunctival disease and then divided them into five distinct categories: First, miliary ulcers, generally found on the palpebral conjunctiva. They may or may not coalesce, but usually undergo a cheesy degeneration. These ulcers yield scrapings that contain bacilli indistinguishable from the bacillus tuberculosis.

Second, small subconjunctival nodules. These may be of a gray or yellowish color, in the former case resembling the "sago grains" of acute trachoma, or yellow, like the miliary tubercles of acute pulmonary tuberculosis. Sections of these miliary nodules plainly show collections of giant cells with groups of tubercle bacilli containing a few, rarely more than a dozen, bacteria.

Third, swollen, hypertrophied papillæ with rounded masses of granulation tissue, generally growing from the sulci, sometimes from the palpebral conjunctiva. These velvety outgrowths are associated with thickened and edematous lids. Eyre regards this form of conjunctival tubercle as an advanced stage of the second, or subconjunctival type, comparable to the spongy masses met with in tubercular arthritis. Sections show collections of round and polygonal cells, but no regular giant cell arrangement. Tubercle bacilli are probably always present, but, as they are few and scattered, it is difficult to locate them.

Fourth, a large number of pedunculated excrescences springing from the folds of transmission and resembling coxcombs. These lupous tumors occasionally show superficial ulcerations and are made up of masses of round cells and new vessels of the embryonic type. Tubercle bacilli are present, but are "few and far between."

Fifth, a peculiar tumor mass attached by a pedicle to the conjunctiva, like a fibroma or papilloma. This new growth is made up of a connective tissue stroma enclosing a mass of round cells with a few collections of giant cells. Tubercle bacilli are sparsely present in groups of from five to ten.

Doubtless many examples of each of these five classes of conjunctival tubercle have been mistaken for trachoma, phlyctenular conjunctivitis, Parinaud's conjunctivitis, papilloma and for other neoplasms of the conjunctiva. In one trachoma-like form Birch-Hirschfeld believed that it was probably derived from a bovine tuberculosis, teaching, contrary to the generally received doctrine, that cow and human tuberculosis are identical, or, at least, communicable from the ox to man.

The fourth class of (lupoid) cases are generally secondary to lupus

of the nose, face or larynx. Probably it is primary in most of the others; indeed, it is a most important question whether tubercle bacilli deposited from the air or rubbed in by the hand may not, as a result of traumatism of the conjunctiva, be absorbed into the system and result in a general infection. Herbert Parsons, for example, asserts that proof of general dissemination from a primary conjunctival lesion is yet wanting. Bearing on this contention is a recent paper by Cabannes,<sup>1</sup> in which he claims and brings evidence to prove that the conjunctival sac occasionally furnishes the gateway through which the tubercular poison enters the system. In most of the severe cases of conjunctival tuberculosis the preauricular glands are enlarged, followed by swelling of those at the angle of the jaw.

The prognosis *quo ad* the local disease is generally favorable. In otherwise healthy individuals curetting the actual cautery and disinfection of the operation wound generally brings about a cure.

*Corneal Tuberculosis.*—Just as the miliary forms of conjunctival tuberculosis may be mistaken for trachoma so undoubtedly has tuberculosis of the cornea passed current for interstitial keratitis.

Parker, in the July, 1906, number of the *Ophthalmic Record*, describes a case of tubercular keratitis occurring "in a woman, aged 36, who had been under observation for about a year and who continues to have the disease in an active form. The diagnosis was made because of its reaction to tuberculin. The cornea contains interstitial deposits near the margin which radiate towards the center. Near the cornea, in the sclera, there are deposits which give it a nodular appearance. These portions are injected and have a peculiar violaceous tint."

Bach (*Archiv. f. Augenheilkunde*, xxxii, 1896) speaks of deposits of primary tubercle in the form of small nodules. These are first deposited about the sclero-corneal junction, whence they gradually invade the corneal tissues and form ulcerations that show very little disposition to heal. Repair is followed by grayish, finger-like opacities. Bach further says that, inasmuch as the corneal tissues form a poor culture medium for the bacillus tuberculosis, the parenchymatous form of keratitis tuberculosa is probably due to the action of the toxins. Primary tubercle of the cornea is, however, very rare. When found it is generally the result of traumatism with subsequent infection of the wound. Such a case is reported by Greef from a finger-nail scratch. The ordinary cases of corneal tuberculosis are of the parenchymatous type, being mere extensions from the uveal tract with which the cornea is intimately associated. In still other instances it assumes the form of a sclerosing keratitis or of a more discrete series of deposits, more in the cornea proper.

Finally, cases that go on to caseation and present all the other characters, clinical and histological, of miliary tuberculosis have been carefully worked out and described in literature. Altogether, considering the comparative rarity of the corneal disease, there is, perhaps, no ocular tissue that presents such a variety of lesions and appearances and simulates so closely the tissue alterations of other infections that one may well

1. Archives d'Ophthalmologie, January, 1906.

suspect that a goodly percentage of the anomalous forms of corneal deposits and ulcerations so often encountered by the ophthalmic surgeon are tubercular in character.

*Sclera.*—Although primary tubercle of the sclerotic is practically unknown, it is often, like the cornea, invaded by uveal tuberculosis. In the latter case the lesions assume the character of caseating masses or, more rarely, have the appearance of an ordinary scleritis. Possibly the last mentioned form is but the first stage of the neoplastic nodules.

*Intra-ocular Tuberculosis.*—The most important contribution to this subject in recent years is the brochure of Treacher Collins, contributed to the Fifteenth International Congress of Medicine, Lisbon, 1906. It is based on his histological examination of eighteen eyeballs preserved in the laboratory of the Royal London Ophthalmic Hospital. Like the extra-ocular variety, intra-bulbar tubercle is more frequent in the first half of life. It is usually secondary to deposits in the lungs, intestines or other organs and generally requires the most careful cultural and other tests to determine its precise character. It must be remembered that, as a rule, the bacilli are comparatively few in number and the discovery of "giant-cell systems," with or without secondary caseation, may form the only proof of the tubercular ravages.

The aqueous humor is an excellent medium for the growth of the tubercular bacilli. The inoculation of a guinea-pig's or a rabbit's anterior chamber with suspected *materies morbi* usually furnishes conclusive evidence of the character of the suspected lesion. Within twenty days after such implantation the inoculation, if tuberculous, shows in iridic nodules that become confluent, fill the anterior chamber, invade the cornea, perforate and bring about a general infection from which the animal usually dies in two or three months. Finally, I need hardly refer you to the diagnosis of tubercular lesions of the eye by the use of Koch's tuberculin, new or old. An excellent paper on this subject by William E. Gamble and E. V. L. Brown may be read in *The Journal of the American Medical Association* for Oct. 14, 1905, in which this matter is fully discussed and its literature quoted. In their case of iritis tuberculosa there was a sudden, typical rise of temperature (2 to 2.5 degrees) on two separate occasions, accompanied by chills, pains in the joints, etc., after doses of new tuberculin (TR.). There were repeated local reactions when the physiological limit of 1 mg. had been reached. These took the form of marked increase in the ciliary injection and in the swelling and vascularity of the iritic nodules.

Regarding the clinical and in some cases other evidence for and against the primary character of intra-bulbar tubercle, the report of Denning<sup>2</sup> is of great interest. Of 91 cases investigated by him, 38 were absolutely healthy in other respects, there being no signs of general or other local tuberculosis before or at the time of the ocular invasion. Fourteen had a tuberculous history, but were healthy before and during the attack. Three had earlier signs of tuberculosis, but were healthy at

2. Archiv f. Augenheilk., vol. xxxi, 1895, p. 359.



the time of the eye disease. Seventeen had tuberculosis which was cured and the patients remained healthy.

The difficulty in deciding from the application of the tuberculin test whether an ocular tuberculosis be primary or not is the fact that, at some time or other, a large percentage of the living population has been the subject of a healed tubercular attack, more or less serious. A reaction may be obtained from dormant deposits that have not furnished the infectious material of the ocular disease. After all, probably clinical evidence should be accepted as conclusive in deciding whether a patient with ocular tubercle is to be described as otherwise "healthy" or not.

*Tubercle of the iris* generally appears in the miliary form as discrete, disseminated, yellowish nodules, 2 to 3 mm. in diameter. They are associated with a keratitis punctata, some pain and a mild degree of ciliary injection. These nodules may, later on, become confluent, in which case one or more circumscribed masses are formed that, continuing to proliferate, may fill the anterior chamber. Destruction of the cornea not uncommonly follows and perforation takes place; the tuberculous mass, with the iris from which it springs, protrudes through the opening, and a fungous, ulcerative, vascular tumor forms. This gradually undergoes caseous degeneration, shrinks, disappears within the diseased globe, the corneal or scleral perforation closes and a phthisis bulbi results.

A third form of iridic tubercle may be described in which the iritis is the principal clinical factor and resembles the same disease produced by syphilis. In this class of cases the iritic nodules are not clearly developed, from the tubercular standpoint. They do not proceed to the development of conglomerate masses, but shortly undergo cheesy changes associated with considerable thickening of the iris.

From the foregoing description it will be seen that in iris tubercle the prognosis is not necessarily bad; even the most destructive processes may subside and undergo eventual cure, with or without destruction of the intra-ocular tissues and loss of sight.

*Tuberculosis of the chorioid* occurs, first, as discrete, miliary nodules scattered over the fundus and seen with the ophthalmoscope as gray patches, or, second, as a mass of caseating tissue formed beneath the detached retina. In the first class, which is by far the more frequent, both eyes are affected, the miliary bodies (numbering from three or four to forty or fifty) being more common near the disc. The nodules vary from the size of a pin point to 2 mm. in diameter. The mirror shows these deposits as round, whitish-yellow spots, somewhat raised above the general level of the fundus. They are rarely ever pigmented, and may make their appearance in a very short time.

The heaped-up mass of tubercle, constituting the second class of chorioidal tuberculosis, resembles in its growth and symptoms glioma of the retina. There is detachment of the retina, rapid growth forward of a yellow-white tumor, plus tension, etc. General miliary tuberculosis is said by some writers to involve the chorioid, sooner or later, in three-fourths of all cases.

*Tubercle of the ciliary body*, according to Treacher Collins, begins

most frequently in the ciliary processes on the inner surface of the ciliary muscle where its ciliary plexus is finest. It here occurs, as in the chorioid, in the form of scattered miliary bodies or as a single conglomerate mass with secondary nodules that are generally the seat of caseation. In most instances the vitreous is affected with fibrinous exudates and cellular hyperplasia, but not with genuine tubercular deposits.

*Tubercle of the retina* is much rarer than chorioidal tuberculosis. So uncommon is it that not even in long-standing disease of the underlying membrane is the retina involved.

The crystalline lens, being a vascular body, can not be the seat of tubercle, but the interference with its nutrition by the disease in surrounding tissue indirectly produces an opacity—a secondary cataract.

*Tuberculosis of the optic nerve*, originating in its pial sheath as discrete nodules, may become confluent and surround the nerve with a diseased ring. It may also extend into the nerve itself, destroying the conducting elements. It may produce a proptosis or an optic neuritis of the "choked disc" type.

*Treatment of Ocular Tuberculosis.*—In some respects the care of a case of ocular tuberculosis does not materially differ from the treatment of the general infection of which it so often forms a part, but, considering the fact that in many cases even of serious intra-ocular tubercle the nodules become absorbed and a partial return to normal conditions takes place, one is encouraged to make use of such remedies as are known to be most likely to bring about resolution. It is not necessary to specify any of these except a few that seem to exert a particular influence on the eye. Any treatment should be guided by estimating the opsonic index of the patient. This has been of great assistance in guiding the conduct of a number of reported cases, for example, in an instance recorded by Simeon Snell (*Transactions of the Ophthalmological Society of the United Kingdom*).

The use of tuberculin injections and the eradication of the nodular deposits in external ocular tubercle have already been mentioned. The introduction of iodoform and the injection of air into the anterior chamber are sometimes of decided benefit in tubercle of the iris. For the more deeply seated lesions they do not seem to be of much use.

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## THE DIAGNOSIS AND TREATMENT OF LARYNGEAL TUBERCULOSIS. SOME UNUSUAL TYPES. AN ANALYSIS OF FIFTY-THREE CASES.\*

W. E. CASSELBERRY, M.D.

Professor of Laryngology and Rhinology in Northwestern University Medical School;  
Laryngologist to St. Luke's and Wesley Hospitals, etc.

CHICAGO.

To promote recovery, an early diagnosis is just as essential in laryngeal as in pulmonary tuberculosis, and an early diagnosis is necessarily based upon the laryngeal image, although in certain unusual types every possible test is required for confirmation or exclusion.

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The earliest definite lesion is laryngeal hyperplasia or infiltration, which is usually bilateral, diffused rather than circumscribed and of a pallid or pale florid hue. It affects particular anatomical features of the larynx approximately in the following order and manner: First, the interarytenoid fold, on the front surface of which appears a rugous or warty outgrowth. Soon afterward, around the vocal processes appear similar but smoother and smaller, uneven prominences. These by merging with the swollen interarytenoid at its movable angles of convergence with the posterior ends of the vocal cords lead to the formation of characteristic flexion fissures in the swollen tissue at these angles. Next, one or both arytenoids are affected with the classical pyriform edematous infiltration, and conjointly the ventricular bands take on irregular tumefaction.

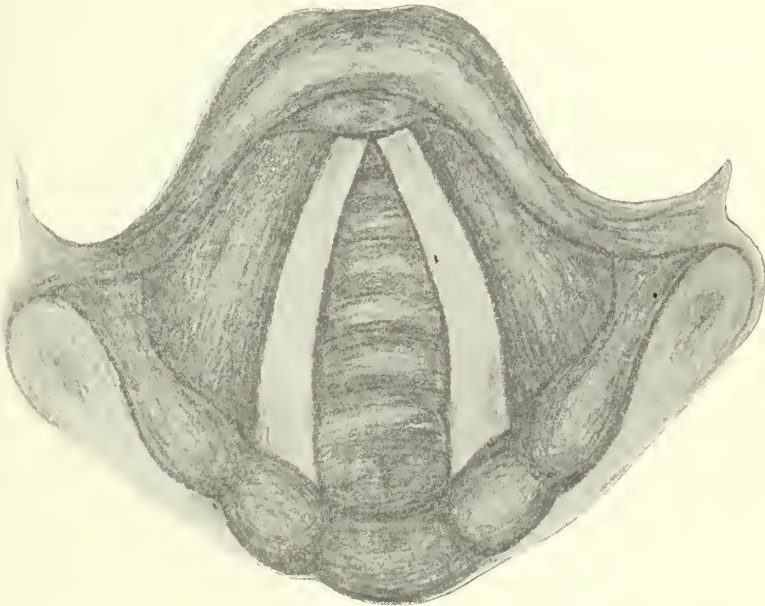


Fig. 1.—Outline of the larynx for comparison with the other figures.

tion; the vocal cords, affected sooner or later, have a wavy outline or else appear as if duplicated along the whole or part of their length; and, lastly, the epiglottis, deeply infiltrated and edematous, assumes a grotesque turban shape, while dotted over its surface may be seen minute, yellowish-gray, tuberculous foci.

The second stage, that of ulceration amid the tumefaction, commonly supervenes within a year or so, the vocal cords, especially at the site of the vocal processes, and also the adjacent parts of the ventricular bands and arytenoid being prone to ulcerate early even at a period before the epiglottis has shown any infiltration.

As I have observed it, the particular point of earliest ulceration is at or near the angle of convergence of the vocal cord, ventricular band, arytenoid and interarytenoid fold, a spot which embraces, of course, the vulnerable vocal process and the same spot or angle at which a crease or



flexion-fissure has perhaps previously formed in the swollen tissue. This observation, taken in connection with the character of the ulcers, I believe to be of considerable diagnostic significance. The ulcers are of the mouse-nibbled or worm-eaten sort, at first small but multiple, progressive, tending to coalesce and not conspicuously interblended with cicatrices.

The third stage, that of the formation of granulation tissue or granulomata, is an abortive effort at repair; hence the presence of undoubted granulation tissue is indicative of an underlying, perhaps hidden, ulceration.

Of the three subjective symptoms, dysphonia, dyspnea and dysphagia, the first, that is, persistent hoarseness, is an early indication and should suggest examination, but it is of no diagnostic importance unsupported by the laryngoscopic image. Severe dyspnea is only an occasional terminal symptom, but minor degrees of obstructed breathing may appear at any time from various causes. Mere discomfort in swallowing first appears at the period of pyriform swelling of the arytenoids, but the excruciatingly painful swallowing which precludes the taking of nourishment and so hastens the end belongs to the period of infiltration and ulceration of the epiglottis, being, therefore, a late symptom.

Our most familiar impression of the course of tuberculosis of the larynx is that of a disease having a speedy development, persistent progress and rapidly fatal termination, and out of a total number of fifty-three cases, of private record, these characteristics pertained to a group of twenty; enough surely to explain, but scarcely to justify the general impression of utter hopelessness which prevails with respect to it. The ages of the twenty ranged from 18 to 65 years, with a mean of 36 years. They all were affected also with pulmonary tuberculosis. They all died in less than an average of a half year from the first examination and in less than one year and a half from the first onset of the laryngeal complication. Six of them suffered, in addition, from tuberculosis of the pharynx and tonsils or lip, and one had also an extensive aphthous-like exudate of the pharynx. A single case will serve to exemplify this group, which, after its pulmonary analogue, may well be termed:

*The Galloping Type.*—Miss A. C., aged 27. Examination in December, 1898. Cough for eight months. Initial signs at apices of lungs. Tubercle bacilli present. In a case-book sketch was noted rugous hyperplasia of the interarytenoid fold, which extended on one side to the vocal process. At the second month another sketch showed pyriform swelling of the left arytenoid, ulceration at its junction with the vocal cord and extension of the infiltration along three-fourths of the left cord. Local treatment by lactic acid and later with iodoform was unavailing, and at the third month infiltration of the ventricular bands and epiglottis had entered the picture (Fig. 2). From the third to the sixth month she resided in Phoenix, but on her return at the seventh month the epiglottis had become turban shaped, ulcerated and very painful on swallowing so that inanition hastened the end at the eighth month.

Another group of four cases out of the total series of fifty-three was characterized by quite a different course, by extreme chronicity, by pronounced hyperplasia, long delay in the occurrence of definite ulceration, a minimum of pulmonary tuberculosis and good general nutrition.



Theisen,<sup>1</sup> Rhodes<sup>2</sup> and others have described examples of it under the title of "Hypertrophic Tuberculosis of the Larynx." I believe the cases are not as rare as their scarcity in literature would seem to indicate. Probably authors have not felt impelled to describe separately what is evidently only a variation in degree rather than a difference in kind, but the perplexities of diagnosis will justify the citation of a case as a representative of this variation, which, I think, would better be termed the:

Chronic Hyperplastic Type.—Mr. E. Z., aged 44, states that five years ago he first noticed a persistent cough and expectoration which culminated after four months in a pulmonary hemorrhage, but that with the exception of hoarseness and cough, he remained fairly well during the following two years, when the hoarseness increased and discomfort in swallowing began.

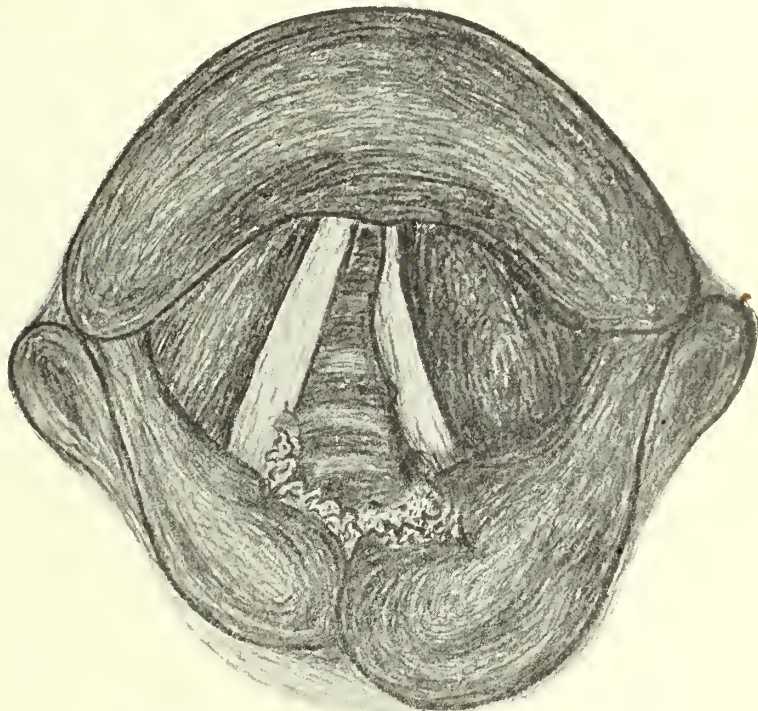


Fig. 2.—Case of Miss A. C.—Tuberculosis of the larynx; galloping type.

On first examination of the larynx, April 2, 1906, I noted the presence of a pale pyriform swelling of the left arytenoid region which blended with an interarytenoid thickening, a diffused infiltration of the left ventricular band which obscured most of the underlying vocal cord, left subglottic infiltration, which, with the tumefaction above, served to restrict the mobility of the left vocal cord, and a few warty excrescences which were just barely visible at the angle of attachment of the left cord with the swollen arytenoid. There was no ulceration. The entire right side of the larynx was approximately normal (Fig. 3). A single cervical lymphatic gland, located above the hyoid bone, was palpably enlarged, but being in association with hypertrophic tonsillitis it was of little diagnostic significance. On repeated examinations of the lungs, there were found at the right apex minor degrees of exaggerated resonance and fremitus,

1. Theisen, Trans. Am. Laryn. Assoc., 1903.

2. Rhodes, J. Edwin, Jour. Ill. State Med. Soc., February, 1906.

bronchovesicular breathing and prolonged expiration, but due allowance being made for the "relative dullness" of the right apex, the margin of variation was small. The cough was slight, but persistent, and the mucopurulent expectoration scanty. From but one specimen out of several examined did the Columbus Laboratory report "tubercle bacilli present, few, one or two to a field," this finding being verified both by Dr. Gehrmann and myself. Weight 131 pounds, a loss of 6 or 8; pulse, 80 to 100; temperature normal, from 97 to 98  $\frac{4}{5}$ . Tested with tuberculin .005 at 11 a. m., the temperature rose by 11 p. m. to 100  $\frac{3}{5}$ , with other signs of a mildly positive reaction, including moist râles at the right apex. Syphilis was denied and the therapeutic iodid test was negative. The infiltration at that time, while not entirely typical of laryngeal tuberculosis, certainly conformed more nearly to its characteristics than to either carcinoma or syphilis.

This patient has now been under bi-weekly observation for a year. The systemic treatment has consisted of rest from business, open-air living and sleeping and forced feeding; under which he has gained 16 pounds in weight; the average pulse rate has fallen to 72, the temperature runs under 98  $\frac{2}{5}$ , the cough and expectoration are almost *nil*, tubercle bacilli systematically sought for monthly by experts have not again been found and, to quote the patient's own phrase, his "general appearance seems to belie his disease." The local treatment has consisted mainly of protargol, a mentholated emolient spray and rest to the voice, with strict avoidance in his case of all irritating applications. By the sixth month the voice had improved and all sense of discomfort in swallowing had passed away. The hyperplasia diminished only slightly, but enough to expose to view more of the underlying vocal cord and especially the warty excrescence at its angle of junction with the arytenoid, which in appearance was so characteristic that it served strongly to confirm the diagnosis of tuberculosis of the larynx, notwithstanding the unilateral limitation of the disease and the absence of ulceration. At the eighth month the hyperplasia of the arytenoid, while still soft and edematous as tested by a probe, underwent temporarily an enlargement to the extent that it pressed upon the opposite arytenoid and showed itself externally by a slight prominence of that side of the thyroid cartilage. Again, one thought of the possibility of carcinoma, opposed to which, however, was the total absence of lancinating pain, absence of definite nodulation or tumor formation, of hardness to the touch, of florid red or else gray coloration and the comparative absence of glandular infection.

It would have been possible to remove a fragment for microscopic examination, but to open a tuberculous infiltration of this character is liable by mixed infection to hasten disintegration. However, the hyperplasia soon retracted to its former somewhat improved state, and further confirmation of tuberculosis was received in a report from the Chicago laboratory of a histologic test.

The other cases of this chronic hyperplastic type, in all four out of the fifty-three, will be mentioned briefly, as they particularly afford an opportunity for reference to the various methods of treatment employed in them.

In the case of Mr. O., aged 52, the hyperplasia, already of four years' standing, when first seen in 1902, was almost identical with that of the

preceding case, excepting that it was typically bilateral. Little or no ulceration until two years later, when sudden involvement of the epiglottis with painful swallowing led to a decline in spite of the persistent use of x-rays and a return to the same favorable climate which had checked his disease in its earlier stages. Duration, seven years.

In each of the remaining two cases the hyperplasia was limited to the interarytenoid fold, but was sufficiently thick and firm to have caused long-continued aphonia by preventing a close approximation of the vocal cords. To restore the voice, the excess of tissue in one of them was excised by a double eurette; hence, in confirmation of the diagnosis can be shown the tubercle bacilli in a section as made for me in 1893 by Dr. Elmer E. Simpson. In the other one a similar purpose was accomplished

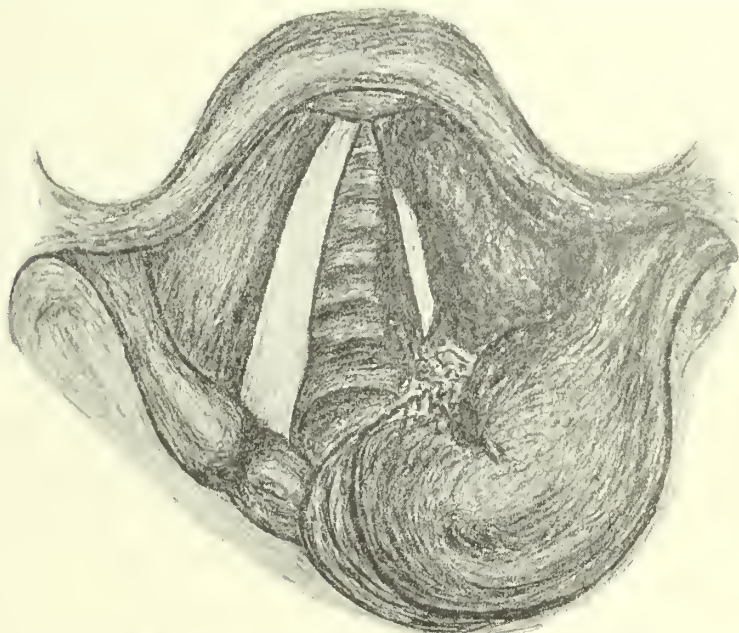


Fig. 3.—Case of Mr. E.—Tuberculosis of the larynx; chronic hyperplastic type. Now of six years' duration.

by the galvano-cautery. Both survived, with the voice improved, for several years, but were eventually lost sight of and presumably should now be numbered among the missing.

Three other cases of the total series might be regarded as belonging to the hyperplastic type, but in one the disease has become arrested and will be so classed, and in two, as the hyperplasia had an exaggerated papillomatous aspect, it will emphasize a distinctive point in diagnosis to mention their salient features as representing:

**The Verrucous Type.**—As granulomata result from an extensive, albeit usually an abortive, effort at repair of tuberculous ulcers, their presence is generally regarded as evidence of either past or present ulceration, but in order to affirm the presence of ulceration on this evidence it



is very important and not always easy, as reflected in the foreshortened image, to distinguish granulomata from tuberculous papillomata, meaning verrucous infiltration, which to a small extent commonly antedates ulceration at the same favorite sites. Again, but more rarely, the verrucous formation may be so pronounced or diffused and may endure so long that it is liable to be mistaken for multiple benign or malignant papilloma.

Mrs. B., aged 48-53 years, duration five years. The infiltration commencing as a papillomatous outgrowth from the interarytenoid fold, afterward affected the vocal processes and adjacent angles of convergence of the cords and arytenoids, where the papillary outgrowth was unusually conspicuous and finally extended over the entire inner surface of the larynx, which appeared as if covered with a grayish warty film. Obstructive dyspnea supervened repeatedly, necessitating curettement to clear the space. When last seen a few months before the end there was not yet definite ulceration and no dysphagia, for the epiglottis had not become affected.

Before proceeding to the type which is capable of arrest or practical recovery and in order to render an account of the entire series, brief reference may now be made to sundry unclassified cases. One not heretofore mentioned was of interest from a diagnostic viewpoint because the disease affected only one side of the larynx and did not involve the opposite side until shortly before death. Altogether, three out of the series might be characterized as unilateral, but two of them are used in other classes. Three cases not otherwise grouped ended fatally after a slow course of from two to five years. Two more are known to have died who had presented evidence of mixed tuberculous and syphilitic infection of the larynx. In one not otherwise grouped, the ulceration first healed, but a recurrence after a year ended fatally. Seventeen are untraceable, of which twelve probably died after a medium course and five may or may not have survived, as when last seen they were resisting well. Aside from all others known to be living, and to be described in the next type, five patients are at present under observation, of whom two are failing and three are in a state of temporary arrest, appearing hopeful.

#### THE TYPE CAPABLE OF ARREST OR OF RECOVERY.

It will not seem inappropriate as the argument develops that locally healed or "arrested" cases should be designated as a type, for, while Herynog Krause and Lake have dwelt upon its surgical curability in a few suitably selected cases, I will seek to establish for laryngeal tuberculosis what is now realized with respect to the pulmonary disease—the fact that certain cases develop of themselves a natural resistance, sufficient, even independently of treatment, to arrest the disease. I propose to show that tuberculous hyperplasia can undergo resolution and that not alone the "simple ulcer" which may chance to affect a tuberculous patient, but real tuberculous ulcers as well, do occasionally heal and remain healed under circumstances in which the local treatment can have wrought but a minor part. Furthermore, these cases have in common other qualities which indicate a superior resistance and hopeful outlook, e. g., less diffused and progressive local lesions, restriction of the pulmonary affection, few bacilli, lower pulse rate and almost no emaciation. Negative qualities which



mean for the patient a fighting chance, provided he be forewarned by an early diagnosis.

Out of the total series of fifty-three, I have precise knowledge of ten practical recoveries or "arrests" of the laryngeal tuberculosis. The diagnosis was verified in one group of four out of the ten by the fact that they succumbed many years after to the underlying pulmonary tuberculosis, the laryngeal recovery having been verified both by examination and by prolonged immunity from throat symptoms.

Brief details of one of them, with references to the other three, will suffice to exemplify this subgroup.

In 1891, while on a visit in New Mexico, I examined Mr. S., an active business man, whose sallow complexion and sepulchral voice had attracted my notice and who was pointed out to me as a marvelous climatic recovery, then of eleven

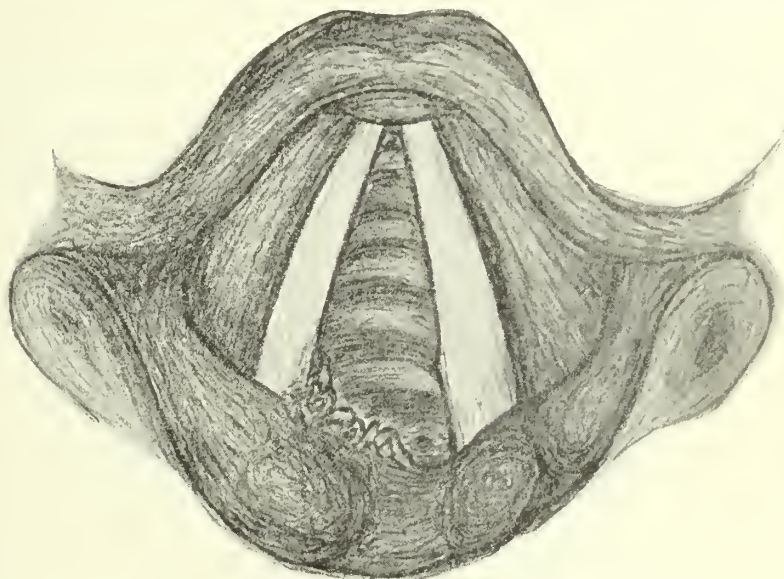


Fig. 4.—Case of R. A. L.—Tuberculosis of the larynx as seen seven years ago. Now in a state of "arrest."

years' standing, from laryngo-pulmonary tuberculosis. The examination, which he courteously permitted, left no doubt that the still perceptible but healed distortion of the larynx represented a former tuberculosis in a state of arrest. He died four years later, but without suffering any recurrence in the larynx during the whole period of fifteen years.

Mr. B., examined in 1895, had cicatricial indentation of one cord, the disease being then in a state of arrest with but slight interarytenoid infiltration remaining. He died nine years later, the larynx having remained well for a period of ten years. Both the diagnosis and arrest of the laryngeal disease were verified by Dr. Levy of Denver.

Mr. Fred B., of Texas, examined in 1893, had slight infiltration of the arytenoids and fold, the disease being then in a state approaching arrest. His son, answering my inquiry, states that the throat remained well until death ensued from tuberculosis of the bladder seven years later.

Mr. C., examined in 1894, had multiple small cicatricial indentations of one ventricular band, the ulcers having healed to remain healed a period of five years until his demise. Verification by Dr. Staples of Dubuque.

In three of the ten cases of arrest the evidence of a veritable tuberculous process is still more conclusive, as they were under my own observation for periods both before and after the healing.

Mr. R. A. L. First examination in February, 1900, at the age of 39. Moderate characteristic infiltration of the right arytenoid and of its angle of convergence with cord and fold and also of the aryepiglottic ligament (Fig. 4). Evident pulmonary tuberculosis, a few bacilli being found. Weight 155. The laryngeal symptoms began three months ago. I sent him to Colorado, where Dr. Gildea applied locally both methyl blue and silver nitrate. At the second examination, on his return in January, 1901, I was surprised to see that the laryngeal infiltration was gone, with scarcely a vestige remaining. Weight 196, pulse still 120, lungs in *statu quo*. At the third and fourth examinations in August, 1901, and in 1902, the larynx remained well. Weight 210, pulse 86, the lungs having improved somewhat. He was then residing at Pasadena under the care of Dr. Radebon, who states in answer to my inquiry of 1907, that Mr. L. is still living in fair health at Los Angeles, seven years in all.

Mr. P., aged 45, the diffused infiltration without ulceration was unilateral. Patient well nourished, even fat, which led to careful confirmation of the diagnosis. Copious expectoration, tubercle bacilli, evident pulmonary signs and a tuberculin reaction. It was in 1901 and he was treated with x-rays, which seemed in this instance to be of benefit, although they failed in other cases. After six months was noted, "larynx undoubtedly better but not well," and after eight months more, "continued reduction of the hyperplasia" was noted. Now, after six years, in answer to my inquiry, he writes: "I have gradually improved, only slight hoarseness and occasional coughing remain."

Mr. W., aged 23. First examination in 1893. Impaired voice for several months. Typically tuberculous laryngeal infiltration of the interarytenoid fold, which involved the left angle and vocal process. Tuberculous cervical adenitis and evident pulmonary disease. Re-examination five years later, he having been home a year following four years in Colorado. He considered himself well. The larynx showed a mere remnant of the former infiltration, and I have information up to the end of seven years of continued maintenance of the arrest.

In the final group of three cases the diagnosis of laryngeal tuberculosis was certified by my own repeated observation and confirmed later by others, but the evidence of its arrest is necessarily based on the facts as reported by the patients that they are now, after many years, not only living, but entirely well with respect to the larynx. In the one which is selected to represent this group, I think no one would doubt the tuberculous character of the infiltration as illustrated (Fig. 5).

Mr. J. W. D., clergyman, aged 27 when first examined in 1901. Voice impaired for a year. Pulmonary tuberculosis pronounced, but of slow progress. Infiltration of the interarytenoid fold and angles of convergence and ulceration in one fissure (Fig. 5), the local treatment consisting of seven curettements followed by lactic acid, extended over a period of six months, but when he afterward departed for Colorado the larynx, though improved, was by no means well. Now, after seven years from the start of his laryngeal complication, he writes in answer to my inquiry: "The larynx has been healed for over three years. . . . The voice is fairly strong. . . . The lungs are still affected, but my general condition is good." Verified by Dr. Gildea of Colorado Springs.

The others of this group (Mr. P. P. and Mrs. A.) were similar, but less advanced. In one the diagnosis was confirmed at Trudeau's Sanitarium, where he was treated by means of tuberculin R. for a short time. He writes at present, after six years: "The larynx does not trouble me at all. For the last four years I have been working right along out of doors in Washington State and pay no attention to lungs or larynx." The

other writes that she is living out of doors, was never healthier and the throat has not troubled her for three years.

**Treatment.**—Reference has already been made to approved methods of local treatment, and, although they may have seemed to have exerted but a minor effect even in that type in which the tuberculous process in the larynx eventually became arrested, nevertheless local treatment is always helpful and is sometimes indispensable; it is meant only that the general condition should not be entirely subordinated to the local means. The mentholated emollient spray mentioned contains menthol, 1; the oils of eucalyptus and gaultheria, each, 1, to yellow vaselin oil, 100. It is, within limits, a sedative to cough and pain and is suitable for home use. To it may be added the pure alkaloid cocain, 0.1, previously made in solution with olive oil, 5 gm. For the more severe dysphagia of the

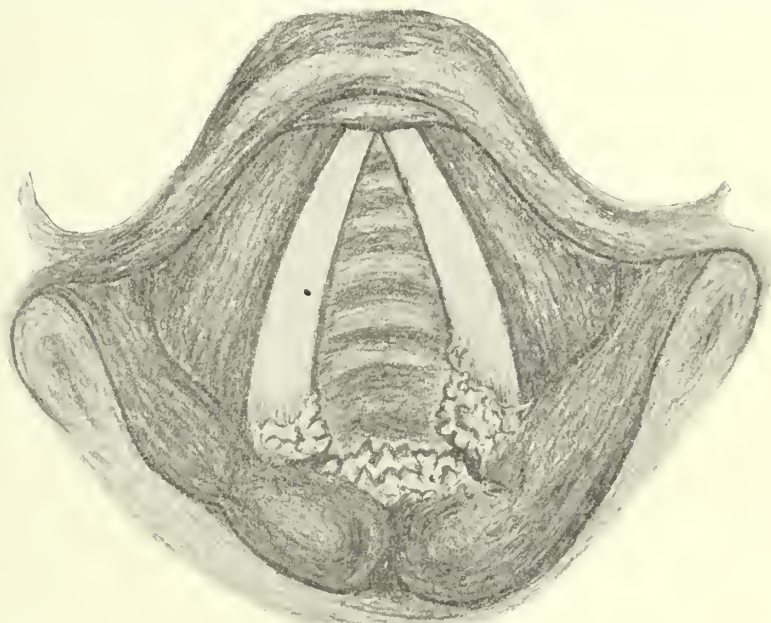


Fig. 5.—Case of Mr. J. W. D.—Tuberculosis of the larynx as seen seven years ago. Now in a state of "arrest."

advanced degree, cocain, 0.2, to powdered orthoform, 100, insufflated (even self-insufflated) in the dose of 0.5 gm., is the most satisfactory remedy, the percentage of cocain in it being harmlessly minute. To it may be added codein sulph., 0.5 to the 100.

Lactic acid by friction and creosote by submucous injection are mildly escharotic in their effects and may be classed with surgical methods as requiring the wisest selection of cases and the most skilful application if one would by means of them accomplish good rather than harm; however, they are each and all capable, in isolated instances, of effecting an arrest or of prolonging life. The abscission of a tuberculous epiglottis is a beneficent measure if only for the removal of an agonizing impediment to the swallowing of food.



Practical experience is yet limited with the treatment by tuberculin in the very minute dose of a thousandth of a milligram, and by other vaccines or sera, the scientific purpose of which is to augment resistance as measured by the opsonic index, but it presents an encouraging outlook.

It is evident that in the 20 per cent. of "arrests" which my series affords the most powerful curative influence was exerted by life in the open air, with all thereby implied; but it is equally evident that unnecessary privation and distress will follow in the wake of an indiscriminate exposure to the elements or to the hardships of travel in distant climes of patients of the galloping type or other advanced incurable cases. One should seek first to differentiate that type which is capable of arrest and, secondly, both in it and the others to make an early diagnosis, as by so doing we are empowered to hold out a larger measure of hope in the presence of what must still remain the most dangerous complication of pulmonary disease—laryngeal tuberculosis.

34 Washington Street.

#### DISCUSSION ON SYMPOSIUM ON TUBERCULOSIS.

Dr. J. W. Pettit, Ottawa:—Mr. President, I believe my part of the discussion is confined to the papers on the management of tuberculosis and the sanatorium treatment of the disease. I do not believe it is very profitable in these discussions to rehearse what the speakers have said. Therefore, I wish to emphasize that tuberculosis can only be said, with any degree of accuracy, to be curable in its incipient stages. When we speak of the curability of disease, we mean a large number, or at least a majority, of the cases. There is no question but that in exceptional cases we get some very remarkable results in those who are far advanced, but the ultimate results in the treatment of the far-advanced cases are not very satisfactory. The success of treatment depends on emphasizing, again and again, the necessity of confining our work more largely to incipient cases, the treatment of which is eminently successful and satisfactory. I do not hesitate to say that if we could get these patients in the incipient stage (and by incipient stage I mean that in accordance with the classification laid down by the National Association of Tuberculosis), and look after their environment and treatment, we could get as good results as in the treatment of typhoid fever.

"A chain is no stronger than its weakest link." The weakest link in the treatment of tuberculosis is the patient himself, and next to the patient, his friends. We do not recognize the importance of the psychical side of the treatment. By this I mean we do not recognize that it is necessary to surround the average patient with a pleasant environment. There is no question about the curability of the vast majority of incipient cases, but the results fall far short of the possibilities, because the patient will not accept the conditions we prescribe for him. Especially is it difficult to get a patient to accept the necessary time limit. For instance, a patient who should be under treatment for six months will accept four weeks or six weeks, or at most three months. What is the result? He goes home apparently cured, so far as his appearance is concerned. He thinks he is all right and that the disease has been arrested. Some untoward circumstance occurs, or some indiscretion is committed, and he goes to pieces, and his case is reported as another failure. The fact is most patients and their friends make the unfortunate mistake in believing a cure has been effected, when the disease is simply arrested, or, in other words, when they have gotten rid of the mixed infection. As a matter of fact, when this stage of the treatment is reached the actual fight against the disease has only commenced. They have simply gotten rid of the mixed infection. Not infrequently when the patient has regained his normal weight, and all the bodily functions are being performed normally, he thinks a cure has been effected. Until such misconcep-



tions are corrected we will not secure the results from the modern treatment of tuberculosis that we should obtain. The more I see of the possibilities of the treatment, the more I am convinced of its value. But there are certain conditions operating against the success of the treatment which must be remedied.

The modern treatment of tuberculosis is just now threatened with the same danger which has discredited other valuable therapeutic measures in the past. The people, and many of the profession as well, have exaggerated opinions as to what can be accomplished and the conditions necessary for success. Professional and lay sentiment must be changed in many important particulars if we would save the treatment from falling into disrepute. We should preserve it for the good it can do by not undertaking the impossible. Two important facts must be borne in mind: First, we must recognize the limitations of the treatment, and second the conditions, limitations as to curability by confining ourselves to incipient cases. Under present conditions probably not more than 10 per cent. of patients admitted to private sanatoriums are in the incipient stage. More than 50 per cent. are advanced, and the remainder far advanced. These are the conditions which we must meet at present. If the value of the treatment is based upon the results obtained under present conditions, public and professional expectation will not be met. This, however, is not a fair test and those most actively engaged in the work know it is not and are sounding the note of warning. The value of the sanatorium should not be regarded simply from the standpoint of a curative agency, but as an educational institution. This is its largest field of usefulness.

The number of patients that are being cured under present conditions is unfortunately too small for the reasons given. The educational value that comes through these patients, when they are discharged, is very large, and a patient, whether benefited or not, when he returns to his home will not be a menace to his family and friends. Each patient will be a center of influence in spreading the knowledge necessary to prevention. If we accomplished nothing more than this the sanatorium would be worth all its costs. But we can do more; and we will do more if we can only have it thoroughly understood that it is only in incipient cases we should expect the best results. There is probably no problem in medicine—certainly none that we regard as serious—that is more inviting than the treatment of incipient tuberculosis, and none more discouraging or disappointing than an attempt to cure far-advanced cases. Out of fifty-three or fifty-four cases, treated at the Ottawa Tent Colony (far-advanced cases), we obtained what seemed to be permanent results in only three. There was enough expenditure of money and energy on those fifty-three to have restored to health twice the whole number, if taken in time. There is enough money and energy being expended in the work to-day to take care of practically all the people who have tuberculosis, if it were only expended aright. We are wasting our money and energy in not taking these people at the right time.

The treatment is not easy, either from the standpoint of the patient or of the physician. We must not lose sight of the fact that in the application of the treatment we must reckon with the individual. He is not consciously sick and that makes him a difficult problem. It is really pathetic to see how anxious these patients are to get well when suffering from the active symptoms of the disease. They are ready to do and to promise everything, but as soon as they get rid of the mixed infection and begin to feel well and look well they think they are well and either give up the treatment or through some thoughtless indiscretion, such as a visit home, overexercise, lose in a few weeks what it has taken them months to gain. Then they are penitent. They are ready to submit again to treatment, but unfortunately there is no absolution from their sins. Repentance comes too late, for the reason that when a patient relapses it is always more difficult and not infrequently impossible to regain that which is lost. The patient and his friends, as a rule, are more of a problem than the disease. Some one has very wisely said "tuberculous patients are apt to die from their disposition rather than their disease." This unfortunately is true. It requires the same elements of character to succeed in the fight against tuber-

culosis as for obtaining success in the ordinary affairs of life. The intelligent, courageous, persistent patient, with an opportunity, may get well. The dissolute, fickle and unstable patient rarely ever, and this without regard to the stage of the disease. After all, it is not so much a question of who is curable as who will be cured. We are apt in discussing this question to look at it simply from the physical side, ignoring the fact that the patient is a free moral agent and a cure can not be effected without his cooperation. The easier we can make it for the patient the less danger there is of failure. This can only be done by making an early diagnosis which shortens the time and makes less rigorous rules necessary.

Dr. Ethan Allen Gray, Chicago:—Speaking about the social aspect of tuberculosis, I think if there is any one thing which we should regard as the crux of the situation, it is the importance of tuberculosis in children. In investigating the large percentage of all deaths from tuberculosis in two large cities of this country, we found 13 per cent. in all cities of which I have recent information, namely, New York and Philadelphia; that is, 13 per cent. of all deaths from tuberculosis occur in children under the age of 5 years. That takes into account a large number of cases of tuberculosis which occur among children of that age under those years. It gives the idea that possibly we have a clue to the reason why we have tuberculosis occurring in the later years of adolescence. Of course, when we remember that there is such a thing as latency due to heredity, or latency due to the infection of children from tuberculosis in the parents from accidental infection, we can readily understand the recent work of one of the German pathologists who found virulent and very active tubercle bacilli in calcified glands after years of apparent cure, and there is no doubt that to-day we have latent tuberculosis, and through some intercurrent disease, such as whooping cough, measles or influenza, we may have reason for the great increase of tuberculosis following epidemics of la grippe. If we can prevent the recruiting army of consumptives from year to year and from decade to decade, it can only be done by going after the children. That is where the fight will be.

Dr. Favill has pointed out that we might not see any results for another generation. That may be true. I think we will see results in a certain way if we can cut down the death rate in infancy. We can do something there, and the next generation, if we are fortunate, may see a material reduction in the adult death rate, and it is here where social workers must concentrate their energies. Of course, that means they will have to stand between the children and the consumptive himself. Such institutions as the various antituberculosis societies, both national and local, have that in charge, and we must recognize the influence of them, both in this country and abroad.

That brings up the matter of early diagnosis, and that is one of the most important things of all. With reference to what Dr. Butterfield said in regard to the incipient cases of tuberculosis, we may take a child anywhere from childhood up to adolescence and follow it through the history of delicate health. It may be noticed that a child, who is growing rapidly, is not doing first class; the child is breaking down from ordinary school work. Such cases as that are in a condition to break down; they run slight temperatures under the slightest provocation; they may have more or less glandular involvement from time to time, and are prone to such infections. If we could go over these cases carefully we would find some focus of infection. This focus of infection might be difficult to discover by a superficial examination, but if we give the child the benefit of the doubt, and treat it as a possible case of tuberculosis, we might cut off one more recruit, and I believe that is what we have got to do if we wish to cut this thing short.

Dr. Harold N. Moyer, Chicago:—I have listened with great interest to this discussion, which has been singularly limited to the pulmonary form of the disease, and it is time we should do something for the glandular, nervous and bone forms of tuberculosis that are so frequent, and from which so little benefit is derived from ordinary hospital treatment. It is really pitiful to see children and adults in hospitals with tuberculosis involving many organs in which the

same open-air treatment, as applied to the pulmonary form, would be efficient, and perhaps more so than in the pulmonary form of the disease.

Dr. William E. Quine, Chicago:—Nearly every one who has spoken has dwelt upon the importance of the early diagnosis of pulmonary tuberculosis; and one of the essayists appeared to convey the implication that the diagnosis should be established before cough and expectoration occur and before there is marked elevation of temperature, acceleration of pulse, or obvious deterioration of the general health.

It is admitted that in a large proportion of cases an unequivocal diagnosis is not declared early enough to give the patient a fair show for his life. There is abundant reason, therefore, for urging greater attention to this awful problem.

But how are we to make a safe diagnosis in the absence of a cough, expectoration, bacilli, temperature and pulse disturbance and general deterioration of health? It can not be done. Of course, considerations of prudence compel us to give the patient the benefit of the doubt in every case and even before there are adequate grounds for a diagnosis.

Very few physicians are sufficiently familiar with the refinements of physical diagnosis to be willing to base conclusions upon such findings in the absence of confirmatory evidence of pulmonary disease; and even yet too few use the microscope in diagnosis.

What is to be done, then, by physicians whose diagnostic resources are not adequate to the early recognition of pulmonary tuberculosis upon the basis of physical exploration of the chest or of microscopic examination of the sputa? I know of no better proceeding—available alike for all classes of practitioners and quite warrantable when a positive diagnosis is demanded—than the use of tuberculin. This will enable the halting and undecided physician to speak with authority and in time to give his patient a chance for his life.

Dr. Robert B. Preble, Chicago:—I wish to say a few words in regard to the early diagnosis of tuberculosis. There is one fact we should keep distinctly in mind, and that is this: According to the most recent and most careful postmortem studies that we have, a series recently reported covering many hundreds of cases, it is more than probable that every individual beyond the age of 18 has tuberculosis or has had it. When any individual comes to you with a suspicion of tuberculosis, it is possible that there is some reason for believing that he has tuberculosis. Anyone who has had considerable clinical experience may see tuberculosis in a hospital when it is possible and probable. What follows if you make a diagnosis of incipient tuberculosis? In other words, what is the result to the individual? Formerly, when you said to an individual that he had tuberculosis, that meant a radical tearing up of his lifework, so to speak, a radical change in climate and in his manner of living, a thing which, in the vast majority of cases, is absolutely impossible. To-day, what does it mean? It means that the individual must live and lead the right kind of life. He ought to live in the open air, with the proper kind of diet, and with a sufficient amount of things to keep him busy. That is not only true of the sick person, but it is equally true of all of us. If you believe that a certain individual has tuberculosis, you should instruct him as to the way in which he ought to live. If you should make a mistake and he has not tuberculosis, it may reflect on your professional standing, but if the individual should live until he is 60 or 70 years of age, I would not consider it any reflection on you, and if you made an error in diagnosis, what difference does it make? You have directed that individual into the kind of life that all of us ought to be living.

Dr. Edward H. Ochsner, Chicago:—While I have had almost no personal experience in the treatment of pulmonary tuberculosis, the problem which presents itself to me when I see these patients in consultation or when they come to me for diagnosis is what shall I advise them to do and how can I best get them to follow this advice.

Only a few weeks ago I had an experience which taught me a good lesson. A physician brought a patient to my office, and after making a diagnosis of pulmonary tuberculosis, I advised the patient to go to a sanitarium. He asked me



how long it would take him to get well, and before I could answer the question the family physician answered that he would need to stay only five or six weeks, and here comes the point that Dr. Pettit laid so much stress upon. It was impossible for this patient to get well in such a short time, and if he went into a sanitarium with this false idea it would be almost impossible for the sanitarium people to keep the patient long enough to do him any good. I think in their attempt to persuade patients to go to tuberculosis sanitarium physicians very often greatly understate the time which is required for the patient's recovery, and thereby do untold mischief. I have sent quite a number of patients to sanitarium always with the distinct understanding that they were to remain there as long as the physician in charge deemed it necessary, and I am glad to say that they have all returned home entirely recovered. While my indefinite statement as to time required may have kept some people away from the sanitarium, I am sure that the sum total of good done has been greater than if I had not emphasized the necessity of staying so long.

In reference to the question of early diagnosis of tuberculosis, I wish to relate a recent experience. Within the last two weeks I have had under my care four patients, three of whom came with the diagnosis of tubercular glands of the neck, while the fourth came with the diagnosis of tuberculosis of the knee. We immediately proceeded to take the opsonic index of these patients. Case 1 had an index of .5; Case 2 an index of .6; in Case 3 the index was normal, 1; in Case 4 the index was .96. We found that Cases 1 and 2 were suffering from tubercular cervical glands in the acute stage; Case 3, whose index was normal, had a displaced right thyroid, which had been mistaken for tubercular glands; Case 4 had an almost completely healed tuberculosis of the right knee, the tubercular process having practically subsided. To me these four cases were most instructive. To determine by a reasonably reliable method whether the process be acute or chronic, whether active or nearly healed, is of the greatest importance to us. While it is usually relatively easy by the study of the opsonic index to tell whether a patient is suffering from acute tuberculosis or not, it is more difficult and often quite impossible to tell whether they are suffering from chronic or healed tuberculosis. However, practically this is of less importance because the thing which we especially wish to know is whether the process is active, and if it is in an acute stage then it is our business to treat it by the use of the Wright vaccination treatment in conjunction with the other well-established and reliable methods.

Dr. J. W. Pettit, Ottawa:—I was pleased to hear what Dr. Quine said with reference to tuberculin as a diagnostic test. Tuberculin is perfectly safe when used properly. There is only about 4 per cent. of error, and it is more exact than any physical means of diagnosis we can make.

Just a word with reference to the fear of being discredited because of making a mistake in diagnosis. Where there is any doubt whatever, the patient and not the disease should be given the benefit of the doubt. This will always operate to the advantage of the physician. In the past eight months we have had three cases sent to us with a mistaken diagnosis of tuberculosis. In each of these cases the physician who sent them stood higher in the estimate of those patients than he could possibly have done by making a positive diagnosis after the disease had been even moderately advanced. It is no reflection to make such a mistake. It goes to show that he is extremely careful, and that is his highest recommendation to the patient. We had an intelligent lady sent to us from a neighboring city by one of the best diagnosticians, and he had diagnosed it one of incipient tuberculosis. After some weeks it proved that she did not have that disease. We sent her home rejoicing, and I never heard any one give a physician such praise as she did that man. She not only rejoiced that she did not have the disease, but also that she had fallen into the hands of such a careful and conscientious physician. I am sure that it will always operate to the advantage rather than the disadvantage of any physician who is extremely careful even to the extent of making an error in diagnosis.

Dr. E. V. L. Brown, Chicago:—In connection with Dr. Wood's paper, I wish



to emphasize the frequency of ocular tuberculosis. It has been held for many years among ophthalmologists that the great majority of corneal, and in particular chorioidal disease, was due to syphilis; but the pendulum is swinging to the other side on the basis of a great deal of experimental work, and the most accurate statistics we have recently show in a large series of cases that tuberculosis was proved to be the definite etiologic factor in 29 per cent., whereas lues could only be determined in 33 per cent. Those statistics came from Professor Michel and Professor Haab, and in an article recently contributed it is stated that disseminated chorioiditis, which has been looked upon as syphilitic, is now in all likelihood tubercular.

As to the other point, whether or not tuberculosis in the eye is primary, or whether the eye is the primary atrium of infection, I will say that some interesting work has come from Koch's laboratory by Cornet, in which inoculation of the healthy conjunctival sac of lower animals with tubercle bacilli was made, without any abrasion of the epithelium whatever, and the first infection being found not in the conjunctiva itself, but in the preauricular glands, and later a general tuberculosis and death, showing we have inoculation of the healthy intact conjunctiva or structure, without any local manifestations of the disease, and later a generalized tuberculosis. This shows, too, the extent of the disease in certain structures, which might be mentioned. Verhoeff, of the Massachusetts Eye and Ear Infirmary, in a recent article contributes a series of twelve cases in which there was a marked episcleritis; he got a definite tuberculin reaction in each case, and only in two cases of the twelve was there any general tuberculosis, so that we may assume that the external structure of the eye here was early infected before the general tuberculosis had occurred.

Dr. William E. Gamble, Chicago:—Michel and his students, whose work has been referred to by Dr. Brown, have taken very extreme views on this question of the frequency of tuberculosis of the eye. As far back as 1895, Bach, one of Michel's students, made the statement that one-half of the cases of iritis that he observed were due to tuberculosis. Such a statement makes one hesitate in accepting some of their conclusions. Here in America it could not be considered seriously, for tuberculosis of the iris is one of the greatest rarities.

The experiments of Otto Kunz and Prof. A. E. Wright go far toward clearing up the etiology of phlyctenular keratitis and conjunctivitis. More should be said as to the etiology than that it is a strumous condition manifesting itself commonly in childhood. Kunz injected under the skin dead tubercular bacilli which produced typical phlyctenules in the lower animals. Students of Professor Wright have found that in phlyctenular keratitis and conjunctivitis the opsonic index varies from that recorded in health either above or below, while in other forms of conjunctivitis the opsonic index is normal. It is possible that the toxins produce pathologic changes in the eye. This I think may be true of diseases of the cornea, especially interstitial keratitis.

Treacher Collins has pointed out that a tuberculous patient may have iritis without any evidence of there being foci of tuberculosis, such as nodules, etc., in the iris. Iritis, in these cases, he ascribes to toxins.

There is one point that might be further elaborated, and that is, the tuberculin treatment for local tuberculosis. Both Koch and Wright have taught us that tuberculin injections, when used in local tuberculosis, that is, tuberculosis of the glands, lupus, tuberculosis of the bone, have a definite value. In more than 50 per cent. of the cases of tuberculosis of the eye so far reported no other foci of tuberculosis have been discovered. In a considerable per cent. of the remaining cases reported other foci have been demonstrated, but not systemic tuberculosis, so that tuberculosis of the eye can be considered for therapeutic purposes, a localized tuberculosis. The experience of von Hippel and others in the treatment of tuberculosis of the eye by tuberculin injections, has been almost as satisfactory as has the work of Professor Wright in the treatment of localized tuberculosis.

I believe that ophthalmologists are using too large doses of tuberculin in the treatment of these cases. If Professor Wright's work has taught us anything, it is that the large doses, producing clinical symptoms, are a positive harm. It

is probably true that doses of not more than .001 mg. are necessary to be used in any of these cases and that the interval between doses had best be determined by having the opsonic index taken two or three times. After that, treatment could be carried on, keeping the same interval between the doses as was indicated by the opsonic index.

Dr. M. S. Marey, of Peoria:—I wish to refer briefly to the paper read this morning by Dr. Favill on the social aspect of tuberculosis. That is presumed to be one of the most important things connected with this whole subject. I think you will all agree with me that it is more important to prevent disease than it is to attempt to cure it after the patient has it, and I believe the proper time to educate people is in their youth. We know that when people become old, as some of us are, they become a little obstinate, and they do not take to learning as easily. On the other hand, the child's mind is susceptible and will receive any impression that is made upon it. Its mind is elastic, so to speak. Therefore, it occurs to me that if the children in our schools were given lessons on this subject, the next generation would know a great deal more about the prevention of this disease than we do in this age. The right thing to do is to take a girl, who has arrived at the age of 10 or 12 years, and give her a course of training in our public schools in the way of preparing foods, teaching such girls how to cook, in other words. We find many, many young ladies growing up who do not know how to prepare food, how to cook. They get married, and they do not know how to prepare and cook food properly. Therefore they go through life eating improperly cooked food, indigestible food, and consequently their bodies are in a weakened condition. Such people are more susceptible to tuberculosis or any other disease with which they may come in contact. Weakened constitutions can be built up by proper food.

Dr. Favill (closing the discussion on his part):—There is so much food for thought in the discussion of this subject, that I shall only take your time in referring to one or two points. Dr. Quine has given you a faithful and graphic portrayal of the clinical difficulties connected with the early diagnosis of tuberculosis. There is one thing he said that fits in with what I want to say. I came here to discuss the social aspects of tuberculosis, and I said it was not finally a physician's problem; that it must be a community work. I think we will all agree to that. There is no question, however, that although the medical profession can not carry this thing to its ultimate consummation, it can infinitely block its progress toward a consummation by lack of wisdom and essential morality in its attitude as a body toward this problem.

I said in my paper that the problem of dealing with tuberculosis in small communities was a comparatively simple matter. Theoretically, there are involved in it two distinct factors which are closely reciprocal. On the one hand, that great problem of the solidarity of the profession. On the other hand that curious psychology of the patient so graphically portrayed by Dr. Pettit and others, which is absolutely related to and reciprocally swayed and influenced in proportion as this solidarity of the profession is positive or negative. The solidarity of the profession is not so serious a matter except in its broad scientific lines in a large city, because men go along their own paths and think of whatever there may be in their own circle, and there is not very much interplay between one individual and another. The clientele of men is so separate that the influence of one man on another is not great. The play back and forth between men in small communities and in the country is absolute and intimate, and we can not get away from it. I know, because I practiced in the country longer than I have in the city, and I know every phase and every shade of it, and I am not trying to find fault with the situation. But, after all, so far as this problem is concerned, the reputation of a medical man, who makes an early diagnosis of tuberculosis, and perhaps is mistaken about it, except so far as the intelligent individual patient noted by Dr. Pettit is concerned, may be made or marred. The reputation of a medical man in a mistaken diagnosis on that basis is made or marred, by whom? By his fellows in the medical profession, and Dr. Quine and all of us know perfectly well whether we are blameless or not. We know perfectly

well that the solution of that problem, so far as it influences the people, rests with the medical profession, and we must stand together not only in our scientific knowledge, but in our moral attitude with regard to one another in this matter, and when we, instead of being the comforting creatures for our dissatisfied patients, stand as enlightening factors in the community with reference to the true attitude and activities of the profession, then what I have said about the problem of tuberculosis in the small community and in the country being simple will be true.

Dr. Wheaton (closing the discussion on his part):—I sincerely hope that Dr. Quine did not misunderstand me, for when I alluded to what constitutes early involvement, I mentioned slight initial lesions limited to the apex of one lobe. I firmly believe that we may have early involvement without the presence of tubercle bacilli in the sputum and expectoration, without rapid pulse, or other symptoms which go to make up a clinical picture of tuberculosis. I believe that the family history is important in these cases. While I do not believe in a tuberculous heredity, yet I am of the opinion that we inherit a diminished physiological resistance to disease. I believe puny children in families should be watched carefully, as we know if we find tuberculosis in the mother or father, or a history of it, eventually we will find a tuberculous child or children which should be placed, if possible, under the most favorable environments to counteract the inroads of the disease.

I regret more has not been said in regard to the education of the laity as to the hygiene of tuberculosis by means of free lectures delivered in cities of this size (referring to Rockford) throughout the year by members of the medical profession. Such lectures have been delivered in the City of Chicago and elsewhere, on the hygiene of tuberculosis, and much good has been accomplished by them. The laity have been kept alert as to the dangers of this and other diseases, not necessarily creating phthisiophobiaes, which is a positive injury to the cause, but giving correct information regarding this widespread malady, and it is along these lines we must successfully combat this disease.

Dr. Babcock (closing the discussion on his part):—There are few problems in diagnosis confronting the general practitioner more difficult than the early recognition of pulmonary tuberculosis. He can not make use of the *x*-ray; perchance, he is loth to resort to tuberculin for various reasons, and he must rely, therefore, upon clinical observation. The fact that the diagnosis of early tuberculosis is difficult is recognized by everybody. It is, however, no excuse at all for ignorance on the part of the practitioner which makes him recognize pulmonary tuberculosis only when it has reached a moderately advanced stage, or perchance even has reached the stage of cavity formation. It fills one with mortification to hear men at health resorts say, as they do over and over, that they have cases sent to them as instances of incipient or early tuberculosis which already have cavity formation. The physician who wishes to diagnose a case of pulmonary tuberculosis when it is still latent, or when active symptoms are just beginning, and who must rely on clinical methods, must judiciously weigh the constitutional disturbance that is present in connection with the pulmonary signs, indefinite oftentimes as they are, and therefore the recognition of the disease is largely a matter of judgment. It may be unscientific to say that we sometimes see cases of pulmonary tuberculosis which we recognize as early, and yet we can not say absolutely just why we believe these cases to be tuberculous. I am sure I have seen cases in which I could not specify any one particular thing, which, by itself, would indicate them to be tuberculous, and yet the sequence of events has borne out the correctness of the diagnosis. The practitioner of medicine often depends upon the recognition of tubercle bacilli in the sputum in making a diagnosis of tuberculosis. That, of course, is conclusive evidence, but by the time the case has become one of open pulmonary tuberculosis, and tubercle bacilli are being discharged, the case has passed into a stage in which incipency no longer exists. It may be still early in the evolution of the disease, but it is still passing from incipency into a stage a little more advanced. The transition is slight.

The prognosis in a case depends upon the early recognition of the disease;



hence it behooves every one of us to study the cases not only with reference to the pulmonary findings, but as regards the constitutional effects in connection with these, and under the pulmonary findings I would especially emphasize slight deviation from normal in the breath sounds in localized areas, or perhaps a single localized focus at the apex posteriorly in the suprascapular region. I am perfectly certain many physicians overlook cases in the early stage because they confine their attention to the front of the chest of the patient, rather than to the posterior portion of it, and because they do not compare carefully small areas in the two apices.

Dr. Norbury (closing the discussion):—I have very little to add to what I have already said. I would have been pleased to have heard more discussion in regard to tuberculous meningitis and brain tumors. I would like to have heard an expression from others along this line, more particularly with reference to tuberculous meningitis. Usually the prognosis of tuberculous meningitis is gloomy, and yet occasionally patients recover, notwithstanding the fact that Osler and others say this disease is essentially fatal. The reason I say this is because some years ago two cases were reported by Dr. J. T. Eskridge of Denver. One of these cases was a patient in whom I was especially interested. The case was diagnosed as one of tuberculous meningitis by Dr. Eskridge. The late Dr. Parkhill saw the patient. This patient recovered after having been eleven months in bed, and is now well. This patient was an adult, which is a factor in prognosis, and leads me to say that in the adult it is possible under appropriate treatment to get an occasional recovery.

As to tuberculous tumors of the brain, we know that most all cases of this type are usually multiple, especially in children; now and then a recovery may take place in such instances, following an operation. We should keep in mind, however, the fact that we may find other tumors than the one which causes localizing symptoms. I had experience with one or two such cases where the post-mortem findings revealed that other tumors existed. ●

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## BLOOD PLATES AND THEIR CLINICAL SIGNIFICANCE.\*

OTIS O. STANLEY, M.D.

CHAMPAIGN, ILL.

Blood plates are the smallest formed elements of the blood. They are usually about one-third the diameter of the red corpuscles and appear as translucent, colorless bodies of varied shapes, according to the form they have assumed at the time they were fixed for examination. Many observers—Hayem,<sup>1</sup> Laker<sup>2</sup> and Kemp<sup>3</sup>—state that the plates are biconcave, resembling in this respect the red blood corpuscles. However, most observers are not in accord with this view.

The blood plates were discovered by Donne,<sup>4</sup> in 1842, but his work was practically forgotten. During the next thirty years they were found, from time to time, by different observers, but the methods employed were crude, and they were nearly always confused with other things. Zimmerman,<sup>5</sup> for instance, in 1846, probably included them, together with other things, in his "*Elementarkörperchen*," and Max Schultze,<sup>6</sup> in 1865, cer-

\*Paper read before the Champaign County Medical Society, February 14, 1907.

1. Hayem: Arch. de Physiol., 1878, p. 692-734.

2. Laker: Sitzungsber. der Kais. Akad., Wien, Abtheilung iii, vol. lxxxvi, p. 173-201.

3. Kemp: Studies from the Biol. Lab. Johns Hopkins University, 1886, vol. iii, p. 305.

4. Donne: Compt. Rend. de l'Acad. des Scien., 1842, vol. xiv, p. 366-368.

5. Zimmerman: Rust's Magazine f. d. gesammte Heilkunde, 1846-1848, vol. lxvi.

6. Max Schultze: Archiv. f. Mikroskopische Anatomie, 1865, vol. i, p. 1-43.



tainly had them under observation in his "granular masses," but none of the authors of this period even came approximately near a satisfactory description of the plates or a suggestive hypothesis as to their origin and function. Riess<sup>7</sup> (1872) was the first to study them with the idea of determining their possible clinical importance. His observations were very much lessened in value because of two peculiar properties of the plates which he failed to note and provide against; namely, their ease of disintegration and their marked tendency to stick to foreign bodies. A further criticism of his work, a criticism applying equally well to most of the observers who have followed him, is that too few observations have been made on any particular disease and too careless and incomplete records were made of the cases which are cited.

Ranvier,<sup>8</sup> in 1873, while studying the fibrin network in blood clot, described the nodes which we now know to be made generally by broken-down plates, and Vulpian,<sup>9</sup> at the same time, described more accurately how the plates formed these nodes. Osler,<sup>10</sup> in 1874, while studying the "granular masses" of Max Schultze, first found the plates within the blood capillaries in young rats. In 1877 Hayem<sup>11</sup> published his first preliminary papers on the blood plates. During the following two years, in addition to a number of scattered papers announcing the findings of his continued researches, he gave a more complete account of his work in a continued article which appeared in the *Journal de Physiologie*,<sup>12</sup> and from that time to the present he has made numerous and valuable contributions to the subject, his work covering nearly every phase of interest which the blood plates present. He clearly showed that they were connected with the coagulation of the blood, but he advanced, as his most prominent theory, that they were young red corpuscles. In fact, he called them hematoblasts, which pins this function to them by name. Hayem's hematoblast theory never met with general acceptance; it was attacked principally by Bizzozero,<sup>13</sup> whose work was first presented as a communication to the Royal Academy of Medicine at Turin in 1881 and published in a more extended form in *Virchow's Archiv.* the following year.<sup>14</sup> Bizzozero emphasized especially the part played by the plates in thrombosis and in coagulation. This work has been well substantiated. Bizzozero's views have constantly gained ground so that he is, if anything, better known than Hayem in connection with the subject.

The active part which the blood plates take in coagulation is due, in large degree, to the properties mentioned; namely, ease of disintegration and tendency to stick to foreign bodies. These characteristics, more than anything else, have made of little value the large amount of hard work which has been done by many enthusiastic workers with the plates. The

7. Riess: *Archiv. f. Anat. u. Physiol.*, 1872, p. 237-248.

8. Ranvier: *Gazette Med. de Paris*, 1873, p. 93-94; *Compt. Rend. des Seances de la Societe de Biologie*, 1873, p. 46.

9. Vulpian: *Gaz. Med. de Paris*, 1873, p. 94.

10. Osler: *Monthly Microscopical Journal*, London, 1874, p. 141-148.

11. Hayem: *Compt. Rend. de l'Acad. des. Sc., Paris*, vol. lxxxiv, p. 1166-1169, 1239-1242.

12. Hayem: *Archiv. de Physiol.*, 1878, p. 692-734; *Archiv. de Physiol.*, 1879, p. 201-261, 577-613.

13. Bizzozero, R.: *Accademia di Medicina di Torino*, December, 1881, p. 124-128.

14. Bizzozero: *Virchow's Archiv.*, 1882, vol. xc, pp. 261-332 (with plate).

ordinary methods employed in counting either the reds or whites are not applicable to the numeration of the plates, for the reasons mentioned. Of recent years a method discovered by Laker<sup>15</sup> and by Kemp,<sup>16</sup> independently and at the same time, does away with these sources of error. This requires the enumeration of the reds and whites by the ordinary method with the Thoma-Zeiss counting chamber and pipette. The ratio of the red corpuscles to the plates is then determined by drawing a drop of blood into a drop of fixing solution, taking care to put the fixing solution on the wound before any of the blood is allowed to exude. As the blood is drawn into the drop of fixing fluid it is stirred about thoroughly, and the mixture is then placed in an ordinary Thoma-Zeiss counting chamber, using a thin cover-glass, so as to admit as high an objective as possible. The ratio of reds to plates may then be determined. The fixing solution destroys the ability of the plates to adhere to foreign bodies or to break down.

The Thoma-Zeiss counting chamber is too deep to be ideal for determining this ratio. It is often desirable to examine a "suspicious" plate with a higher power than will work with the Thoma-Zeiss instrument. To obviate this difficulty Helber<sup>17</sup> has had a special chamber made the same as the Thoma-Zeiss, but shallower. In determining the ratio the counting chamber may be dispensed with altogether, and the blood, mixed with the fixative, may be examined under an ordinary cover-glass on an ordinary slide, using a ruled scale in the eye-piece or an Ehrlich ocular. This method gives reliable results, when carefully used, but it lacks the convenience of the ruled lines moving with the field.<sup>18</sup> Pratt<sup>19</sup> uses this in preference to any other. He cuts a small square hole in a disc of cardboard which he places in an ordinary eye-piece—thus making a simple and efficient instrument to replace the Ehrlich ocular.

The physiology of the blood plates is not yet fully determined. It is pretty well established, however, that they are of prime importance in the coagulation of the blood. Under the microscope, in thin layers of freshly drawn blood, the plates are seen to clump together, and if a stream of salt solution is allowed to flow under the coverslip and over them the excess of reds will be washed out and the plates, greatly distorted, will be seen, in clumps, adhering to the slide. By this short exposure to contact with the slide the plates have disintegrated and strands and lines of fibrin may be seen to radiate from the plate masses. Some observers maintain that fibrin ferment, an essential element in coagulation, has its origin from the blood plates.

That the blood plates are concerned in coagulation is being more and more believed by physiologists and pathologists. Repeating and extending the experiments of Bizzozero on the defibrination of blood, in which the blood was drawn from an artery, defibrinated and reinjected into a vein, Kemp and his students found, after the eighth to the tenth defibrination,

15. Laker: Sitz. d. Kais. Akad., Vienna, Part iii, May, 1886, p. 32.

16. Kemp: Studies from the Biol. Lab. Johns Hopkins Univ., May, 1886, vol. iii, p. 308.

17. Hilber: Deutsch. Arch. f. Klin. Med., 1904, vol. lxxiii, p. 318.

18. See Kemp, Jour. Amer. Med. Assn., 1906, April 7-14.

19. Pratt: Jour. Med. Research, 1903, vol. x, p. 123.

that all the plates had disappeared. Contrary to the ideas of older investigators, the white corpuscles were not seen to break down and did not show any essential decrease in number. This evident relation of the plates to coagulation has led many to observe the blood of patients suffering with the blood dyscrasias, with especial attention to the blood plates. So manifest has this interest become that it is becoming more and more the rule to discuss cases of hemophilia, purpura hemorrhagica, severe secondary anemia or of pernicious anemia with more or less attention being given to the blood plates and their enumeration.

I was fortunate enough to be associated for a number of years with the investigation of the rôle of blood plates in coagulation which Kemp, of the University of Illinois, has been directing in his physiologic laboratory. I am indebted to him for allowing me to present these charts which show strikingly some of the more important results obtained.

The experiments may be grouped under two headings: those on animals in which the blood is observed before and after thorough defibrination and those observations made on healthy individuals passing quickly from a low to a high altitude.

In the first series of experiments a dog was anesthetized, his femoral artery and vein exposed and each fitted with a canula. Before the experiment careful counts of all the blood elements were made, and in most cases these counts were made for a day or two previous to the experiment. About one-fourth of the total blood was then drawn from the femoral artery, defibrinated by whipping with a wire defibrinator, filtered through muslin, and at the temperature of the body returned to the circulation by way of the femoral vein. After making another complete count of all the elements of the blood a second quantity of blood was drawn and reinjected as before. After each injection careful counts were made of the reds, whites and plates and careful observations were made with the microscope to determine the effect of whipping of the blood on each of these three elements.

Contrary to views quite generally held, it was found that the white corpuscles did not break down during coagulation and that they did not notably or regularly decrease in number. Never did they decrease enough to indicate that they broke down during the process of clotting. The plates, on the other hand, decreased with striking regularity with each defibrination until they finally practically disappeared. The dogs were allowed to recuperate, and for several days following the experiments counts were made to note changes which took place during regeneration. As the plates were most profoundly affected by the defibrination experiments, so they, in the period of regeneration, evinced the most lively activity in getting back to the normal. By a steady, constant rise the plates returned to their normal number in about seven days. These experiments, together with microscopic demonstrations of the disintegrating plates, following their exposure to contact with foreign bodies, show the close relation of the plates to coagulation.

Hayem has maintained for many years that blood plates are the forerunners of the red corpuscles and that plates may be found in normal

blood which may carry hemoglobin, and that in the regeneration of blood after hemorrhage such plates are more numerous. Experiments bearing on this point have been made by a number of other observers, and they are almost unanimous in pronouncing that the "blood plates are without color." In our experiments in the laboratory of the University of Illinois, our findings were in accord with those of the majority, but in our work, at a high altitude, we saw blood plates which were, beyond doubt, colored, and the color was like that of the red corpuscles—only paler.

To note the effect of altitude upon the blood and to observe the relation of the plates to the changes which altitude is known to produce upon the blood, Kemp went, with five graduate students, to the Rocky Mountains, in Colorado. For five weeks at Cripple Creek at an altitude of 9,400 feet above the sea level, and for eight days on Pike's Peak, at an altitude of 14,200 feet, careful daily study was made of the blood. Each one was expert in the particular observation to which he was assigned. Daily observations were made on each individual, and in blood from the same puncture was determined the specific gravity, the number of the reds, whites and plates, the volume of the formed elements of the blood, and the changes in the elements themselves which could be detected under the microscope. It is well known that the effect of altitude on the reds is to increase their number. What the effect of altitude would be on the plates was watched with a great deal of interest.

Before going to the mountains the number of blood plates (average of six individuals) was about 240,000 per cubic millimeter. On our arrival at Cripple Creek there was practically no change in the number of either the plates or the red corpuscles. On the second day the number of each began to rise, the increase in the number of plates being much more marked than in the reds. This increase continued fairly steadily for two weeks. The number then fell to a figure about two and one-half times greater than was observed before going to the mountains, and continued at this mark, for several days, until the party went to Pike's Peak, where there was a transient rise for two days, after which it fell to about the same point at which it had become steady at Cripple Creek. On the lowlands the ratio of the plates to the reds was one plate to twenty reds. On the mountains the ratio increased steadily to one plate to five reds at the end of two weeks. The remarkable effects of altitude on the plates of normal individuals is very striking. Kemp<sup>20</sup> suggests that this element may be of great value in indicating the good or ill effects of altitude on those patients whom we may send to the highlands for one or another of the blood diseases. That the plates are important indicators of the progress of the various anemias and other purely blood diseases and that they may be important factors in the cure of such has been suggested by several observers.

Hayem, who has been studying the blood with special reference to the plates and their bearing on the pathology of the purely blood disease, is very positive in his assertions that the plates are of great prognostic and diagnostic value in such conditions. While his methods are not above

20. Kemp: *Amer. Jour. Physiol.*, 1904, February, vol. x, p. xxxiii.



criticism, his observations are remarkably constant. In his discussion of symptomatic anemia he says, regarding the plates,<sup>21</sup> "It is wrong to neglect these elements. When they are few in the anemias it is always a grave sign. When they become few in number the contractility of the clot is diminished. As you know, I have demonstrated experimentally the rôle played by the plates in the retraction of the clot. By depriving the blood of the horse, of the hematoblasts (plates), by filtration, there is no contraction of the clot and no exudate of serum from it. This double lesion of the blood, rarity of the plates and loss of contractility of the clot, is a sign of progressive pernicious anemia. In the severe anemias susceptible of cure, the number of plates does not become low enough to hinder the retractility of the clot and active treatment is not slow in making it rise."

Hayem found a form of purpura hemorrhagica in which the plates were absent, but in which a normal coagulation of the blood took place. In such cases, however, he found that there was no exudation of serum and no contraction of the clot. Hayem regards the plate count of importance, in the acute infectious diseases, in determining the prognosis. He says that, as a rule, unless there is a marked increase in the number of plates (hematoblastic crisis) at the time of the crisis in pneumonia or typhoid one should suspect a hidden complication. If, on the other hand, there is an increase of the plates at the crisis in the disease, the prognosis is good.

In the anemias, in purpura hemorrhagica, and in hemophilia there can be little doubt that the plates are of great diagnostic and prognostic value. That they are as important as the leucocyte in the consideration of the acute infectious diseases or in the chronic dyscrasias is not so well determined. Along this line much investigation may well be directed with good reason to expect valuable results.

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21. Hayem: *Lecons sur les Maladies du Sang*, 1900, p. 328-330.

# ILLINOIS MEDICAL JOURNAL

THE OFFICIAL ORGAN OF THE ILLINOIS STATE MEDICAL SOCIETY.

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AUGUST, 1907.

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## SHOULD THE TIME OF THE MEETING OF THE STATE MEDICAL SOCIETY BE CHANGED?

Quite a number of the members of the State Society have thought from time to time that it might be desirable to change the meetings of the Society from May until some date in the fall, September or October, and, in view of the fact that the American Medical Association meets in Chicago next June very close to the usual time of our State meeting, it appears that it might be well to consider this subject for the meeting of 1908. A number of the societies have changed from the spring to the fall; among them we will mention Ohio and Pennsylvania. The meeting of the New York State Medical Association occurs the first week in January at Albany, and it has also a fall meeting at the metropolis which, we believe, has proven to be a great success.

The meetings as now held conflict with the time of closing of the medical colleges and the members are usually about worn out from a hard winter's work. If the meetings were held in the fall, before the medical schools begin their sessions, the instructors could attend without sacrificing valuable time and all would be in better condition from the fact of their having had a summer vacation. Again, the third week in May is usually a time of disagreeable weather. Only exceptionally is there such weather as prevailed at Springfield in 1906, when the outdoor

functions were carried out according to program, while at Rockford and Rock Island the weather was so cold and rainy that these had to be dispensed with. In the fall the weather is usually settled and all these functions could be carried out without interruption. We should like very much to have expressions of opinion from our readers within the next sixty days on this matter.

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## ANNUAL MEETING OF THE CHICAGO MEDICAL SOCIETY.

The annual meeting of the Chicago Medical Society was held June 19, with the President, George W. Webster, in the chair. The transactions of this large and important body are so full of interest that we believe an abstract of the proceedings would be welcomed by all practitioners not only in the State of Illinois, but in the entire medical world, and we will, therefore, give a short synopsis of the reports of the different committees in the order in which they were read. Many of the topics now interesting physicians were touched on.

Dr. H. N. Moyer, of the Medicolegal Committee, made a report covering four years in Cook County and one year in the state, in which he said that the committee had considered 79 items, the word items being used advisedly because they could not be designated as suits. These items vary all the way from threats of malpractice to warmly contested suits in court. In four cases the committee had won after legal battles, and had disposed of eight cases definitely. A number of the remainder were dead and nine-tenths of them would not be heard of again. In four years the Cook County Legal Committee had compromised in only three instances, one of which, although a trivial one, was clearly a case of malpractice in which liability was certain. The others were closed up in an amicable manner.

Dr. F. R. Green, of the Organization Committee, reported 228 new members, making a total membership for July 1, 1907, 2,058. Great credit was given to the untiring efforts of the members of the committee and subcommittee. A new branch, No. 13, is being formed.

Dr. A. B. Keys reported favorably with reference to the establishment of a business bureau which has in charge the collection of accounts of physicians who are members of the Chicago Medical Society. We suppose there would be no objection should reputable physicians of other societies outside of Chicago make use of the bureau to collect from clients who have moved into the city.

Contract practice was discussed and the committee, of which Dr. C. D. Pence was chairman, concluded that the final solution of the entire question must come through a complete organization of the medical fraternity, and the more completely the fraternity is organized the more complete will be the final adjudication.

The Committee on the Abuse of Medical Charities find that in the City of Chicago there are at present 55 dispensaries, 16 of which are connected with hospitals, 9 with medical colleges, while 30 have no connection with such institutions. Only 25 are used for clinical instruc-

tion, 7 are privately owned. In 6 dispensaries medicine and treatment are furnished free, in 18 the charge is made to cover the cost of medicine, and in 23 as much money is collected from the applicant as can be obtained, the smallest fee recorded being 5 cents and the highest \$10, which latter amount is charged by a maternity dispensary. Only 5 dispensaries exhibit signs announcing that treatment is limited to the sick poor, and that only those are cared for who are unable to pay outside physicians. Twenty-six dispensaries claim to investigate the ability of the applicant to pay. Investigation by the committee shows that in 51 of the 55 dispensaries the only investigation instituted consists of a few questions put by the physician in charge, the object of which the applicant at once discovers and answers accordingly. One dispensary refers the cases of doubtful applicants to the Chicago Bureau of Charities for investigation; 3 employ a nurse or a clerk to look up suspicious cases.

During the last year 29 dispensaries treated 223,110 persons. In 26, which were run in a slipshod manner, no records are kept of the number of patients treated. Sixteen dispensaries record the number of times each person returned for treatment. During the last year these 16 dispensaries treated 93,806 persons and treatment was given 246,140 times. The number of applicants refused was 1,170. In many cases, on investigation, the applicants for relief were found to be property owners, well-to-do citizens or persons drawing comfortable salaries.

The committee, on the evidence accumulated, finds that there is a constant abuse of medical charity; that 25 per cent. of the population are receiving free medical services, while only one-half of 1 per cent. of the population are receiving other forms of charity.

Dr. R. W. Holmes, chairman of the Committee on Criminal Abortion, made the following report:

The Committee on Criminal Abortion has succeeded in suppressing all objectionable advertisements in the daily press of Chicago. This has been of value to both the committee and the two public officials in aiding the prosecution of abortionists in the Criminal Court. Further advice has been given practitioners who have been called to women suffering from probable or certain effects of criminal procedures.

The first step was accomplished when *The Tribune* suppressed all advertisements of this nature, and one or two others consented to edit their notices. With comparatively little argument on the part of the committee, four other papers joined us by agreeing to refuse all advertisements of a criminal nature. You may appreciate what financial sacrifice this was when it was credibly stated that one of the papers lost \$50,000 a year by so doing. Two papers announced they always had carefully supervised their advertising columns, and when we sent them clippings from their papers no comment was forthcoming on their part. The representatives of the two remaining papers heaped upon us the most vituperative insults and scoffed at us for endeavoring to purge their sheets of feticide advertisements.

As moral suasion had no effect, two other courses were open to us. One to go into the state courts and prosecute not only the advertisers,



but the publishers and proprietors of the newspapers; this would have been exceedingly difficult work and would have consumed an endless amount of time and money for the services of skilled attorneys—materials which were not at the command of the committee. To illustrate, in New York City, one case required the expenditure of over \$600 to secure a conviction. As this plan was impracticable, another expedient was decided upon. A conference with a postoffice inspector was held. Finally an order was secured from Washington, approving the plan of our committee securing the proof of the relationship between the advertisement as it appeared in the paper and the advertisers' willingness to perform abortion; after this evidence, the postal authorities agreed to enter a "stop order." On recommendation of the council and committee, the trustees of our society appropriated \$100 for the purpose. In the course of the next few weeks a detective appeared to each advertiser for the purpose of having abortion produced on herself or on a friend. With two exceptions all the parties visited either agreed to perform the necessary operation or to sell a medicine which would correct the female irregularity. When the sworn testimony was given the postal authorities, a "stop order" was issued. Finally, on April 21, 1907, this order was made permanent on an order of the Postmaster-general. This means that any paper which published notices after the order was entered would be refused the privilege of the mails; by this simple means, with an expenditure of \$73, the publicity of the operators was denied them. From April 21 all the papers in Chicago have been free from advertisements suggestive of criminal operations. Now that the advertisements are removed, the work of the committee in the future will be to see that they are kept out; in the course of time they undoubtedly will appear in a new guise, for the abortionist's clearing house surely is planning to circumvent the order. We herewith append the list of parties affected by the permanent "stop order": Drs. McGrath, D. J. Dennis, Henry (R. Henry) top floor, Martha Walker and Dr. Martha Walker Remedy Company, Woman's Remedy Company, Mrs. Becker Bing, Faustman, Reb, Hagenow, Ida Von Schultz, Maichowitz, Private Hospital, Josephine Rafferty, Swith, White, Dr. Briney, Dr. Carpenter, North Side Dispensary, Private Medical Institute, Dr. Arnold. The Postmaster-general ruled that ten of these people and institutions were fictitious and, therefore, their mail was not to be delivered. One of the physicians paid a fine of \$1,500 in the Federal courts, another was sent to the penitentiary for misusing the mails; another pleaded guilty of murder in the Criminal Court before the jury was impaneled, securing a lighter sentence than he most certainly would have received if he had stood trial and all the accumulated evidence of his nefarious career had been introduced. Three of the physicians and midwives are now under indictment and awaiting trial, one being held without bail on account of the revolting circumstances of the death caused by her.

We would impress the fact on all physicians that they must protect themselves from suspicion in their care of abortion cases by carrying on the treatment openly with consultants and wherever possible in a hospital.

A properly attested antemortem statement placing the guilt on the abortionist is an exceedingly valuable one in protecting the physician and lending efficient aid in a successful prosecution.

As the recent Clark decision of our own State Supreme Court declares all evidence which tends to show the reputation and business of an abortionist may be admitted as evidence in a trial, material accumulated by the committee already has been of advantage to the state's attorney in preparing for prosecutions; in the course of time this tabulated matter will be of increasing value in the trials in the Criminal Court. Finally, your committee stands ready to lend aid to all members of the society who desire information as to their line of procedure when required to attend abortion cases which present legal possibilities. A number of times in the past year physicians have sought advice from us which, we hope, has been of value to them.

The Secretary, in his report, states: It will be of some interest to the society to know that it does not require an effort to gain members to the society as it did formerly, as insurance companies and corporations require that a man should be a member of the organized profession before assigning him to positions of that kind. Also the advantage of protection afforded him by the Medical Defense Fund of the Illinois State Society aids materially in gaining new members to our Society.

Dr. H. N. Moyer was invited to take the chair while President Webster read his address, in which he said:

To be elected the President of the largest and best organized local medical society in the world is an honor of which any one may well feel proud. The general meetings have been held in the Public Library Building, which has been so generously placed at our disposal by the Public Library Board. The attendance was an average of 131. The *Bulletin* has grown in size, value and interest and has become an indispensable means of communication and of dissemination of useful information, and is well worthy of permanent preservation by the members of the Society, as it furnishes an accurate account of the work of the Society outside of the scientific papers. Its usefulness and value will both be augmented in the future. The Ethical Relations Committee, under the able leadership of Dr. W. H. Wilder, reports: "As to the work of the Ethical Relations Committee, it might be said that much of this work is in the nature of secret service, and it has been the policy of the committee, endorsed by the Council, to publish none of this work in the regular issues of the *Bulletin*, except that on which some definite action has been taken. This is to avoid the unpleasant notoriety that would result to any member from having published any complaints that were made against him. Much of the work of the committee, therefore, has been in investigating questions of misconduct, adjusting disagreements of members and generally in handling subjects that are not known outside of the committee. When it becomes necessary to take definite action on any given case, such subject comes before the Council and in some instances it is then published in the *Bulletin*.

It has been the endeavor of the committee to consider all of the deli-

cate subjects that come before it in the most careful, unbiased and unprejudiced way, with a sincere effort to avoid prejudging any case or doing anything that might be construed as an injustice.

This work is often of a very disagreeable nature, but it is of the utmost importance, and the committee has performed its arduous task fearlessly, justly and conscientiously, and the committee deserves the commendation and support of every right-minded member of the Society instead of what I consider has been unjust criticism for certain members of some of the branches. If all medical graduates had received a reasonable education in the principles of ethics and of medical ethics, there would be less work for the committee to do, the tasks would be less onerous, and the criticism more temperate.

The report of the Treasurer shows that there has been a substantial increase in the assets of the Society, the cash on hand being \$10,755.91.

The following officers were elected for the year 1907: President, H. B. Favill; Secretary, Robert T. Gillmore; Councilors for three years, Adolph Gehrman, William L. Noble, George Bell, Frank X. Walls and William L. Baum; alternates, Heman Spalding, Charles E. Paddock, A. B. Keyes, W. S. Pickard and E. C. Riebel.

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#### THE ATLANTIC CITY MEETING OF THE AMERICAN MEDICAL ASSOCIATION.

The 1907 meeting of the American Medical Association, held at the queen of Atlantic coast resorts, Atlantic City, while not so largely attended as the meeting held in Boston, was of unusual interest by reason of the important matters brought before the Association. A determined effort seems to have been made to make trouble by gentlemen representing the proprietary medical interests, the so-called independent journal interests and the usual quota of objectors found in every organization. But the verdict, as might have been expected, resulted in a complete vindication of the officers in charge of the Association for the past ten years, during which time it has shown such remarkable growth and has accomplished so many valuable reforms. One great objection urged against the officers of the Association was the publication of the American Medical Directory, but, as far as our experience goes, there has been no one thing undertaken by this organization which has been so universally applauded as this publication, unless it should be the exposure of the absurd claims of the proprietary medical interests. Both these movements were endorsed.

The subject of medical education was presented by the committee, of which Dr. A. D. Bevan, of Chicago, is the chairman, and was said to be one of the most interesting features of the meeting. A large proportion of the night medical schools (three out of four) were found by this committee to be in Chicago, and, as all were condemned, it stands to reason that a great deal of the reformatory work in medical education devolves upon the profession in this state. The Association endorsed the recommendations of this committee and it is probable that a foundation

was laid which will lead to practical results in the near future. Some of the startling statements made by this committee were:

Of the 160 schools, only about 50 per cent. are sufficiently well equipped to teach modern medicine. About 20 per cent. have no claims to recognition whatever.

Many of the poor schools are conducted as quiz classes for the purpose of preparing the student to pass the state examination, and not with the object of making him a competent practitioner.

Modern medicine requires a better order of intellect than that possessed by the average student entering its ranks to-day in this country.

In this country of great wealth and great population and of high average intelligence, we can no longer be satisfied with our present standards of medical education, nor should we be satisfied with any except the highest and best.

Medical schools need endowments in order to meet the demands of present-day medicine.

If the public realized the enormous difference that exists between well-trained, modern medical service and ignorant, inefficient medical service, they would soon demand and obtain the needed reforms.

A state without the protection of good medical laws, well enforced, becomes the dumping ground of the low-grade medical school, with its output of illy-prepared medical men.

The next meeting of the Association will be of especial interest to the practitioners of Illinois and the Mississippi Valley, as it is to be held in Chicago. By the time of the meeting there will be from 35,000 to 40,000 members and the circulation of *The Journal* will have reached the 60,000 mark. Already *The Journal* has become the largest and most widely circulated weekly in the world. The attendance at the next meeting should be a record breaker, and the membership of our State Society should be greatly increased by this meeting.

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### Scientific Editorial.

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#### SYSTEMIC BLASTOMYCOSIS.

During recent years evidence has been gradually accumulating that the budding and branching fungus, the cause of blastomycetic dermatitis, is responsible for another disease generally unassociated with and independent of the skin affection. This addition to the repertory of the clinician has been named systemic or generalized blastomycosis or oidiomycosis. It is a subacute or more chronic pyemia, during the course of which subcutaneous abscesses develop chiefly upon the extremities, head and neck and less frequently on the trunk.

Curiously enough, most of the instances of this disease have been observed in Chicago or the contiguous territory, the first careful report by German investigators remaining unsubstantiated to any extent for a



number of years. Eight of the eleven cases reported since have concerned patients encountered in this region. J. J. MacKenzie, of Toronto, at the recent meeting of the Congress of Physicians and Surgeons in Washington, mentioned a case observed in Canada, and Coley<sup>1</sup> has recently reported the details of a case observed in New York, which, with the report by Gilchrist a number of years ago, make two cases for the country "cast of the Alleghenies."

Still other patients with this disease have been seen by Chicago physicians, and postmortem examinations have been held upon some of them. Doubtless the details of some of these will be published soon, and among them the interesting, rather acute case shown recently in the clinics at the Cook County Hospital. Certainly Chicago would seem to be in a region where the disease is mildly endemic or the profession here have become better acquainted with the condition than in other localities.

In ten of the twelve patients mentioned in a publication devoted to this subject, the subcutaneous abscesses appeared first as swellings, many of which broke externally and formed indolent ulcers. An analysis of the conditions revealed by the postmortem examinations reported for seven of these patients clearly indicate that the disease, with possibly one exception, had its primary seat in the lungs and from there dissemination took place quite generally over the body, the visible external swellings and abscesses being naturally of greatest clinical interest. The pus contained in these abscesses, if obtained before rupture has occurred spontaneously, is found to possess the fungus in pure culture. The pus is generally somewhat chocolate-colored from the blood content. The fungi are readily detected in the unstained pus by their double contour and refractile edge; in fact, they are more easily found by examining the fresh pus than by attempting to stain them in cover-glass preparations, for with the usual staining methods they do not stain much.

Their presence in the sputum is also of no little clinical importance. In many of these patients the illness began with vague feelings of discomfort in the chest, a cough and later the expectoration of blood-tinged mucus. As a rule, however, the subcutaneous manifestations, due to early dissemination, have led to its recognition before the sputum was examined.

These fungi have been grown and proven pathogenic for various animals. They are found, as stated, in the abscesses unassociated with bacteria or other parasites, and histologically they abound in the various lesions. One of the interesting phases of the disease is the disposition the abscesses show to burrow and involve both bones and joints. The dissemination in the various internal organs of these fungi and the changes resulting in such locations have been found to be far in excess of what might be expected from the clinical symptoms, for the disease has been known to run a course of two and a half years, the earliest reported death being nine months; in other words, dissemination of the pus-producing organisms throughout the body does not cause death quickly. For a few patients there is reason to believe that the apparent

1. Jour. of Med. Research, 1907, xvi, 237.

recovery may be permanent. It is, indeed, a highly interesting period and a matter for self-congratulation that here in our midst a new clinical entity is now being born. In time it is not unlikely that examples of this disease will attract no more notice than one of its closely related processes, actinomyces, now fairly common.

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### Correspondence.

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#### RESOLUTIONS ADOPTED BY THE ILLINOIS STATE BOARD OF HEALTH AT THE MEETING HELD JUNE 18, 1907.

WHEREAS, Dr. Harold N. Moyer, of Chicago, in an address before a branch of the Chicago Medical Society on May 16, 1907, and in a newspaper interview, has expressed the "belief that the examinations before the State Board of Health were frequently crooked, and that money could be successfully employed by unqualified persons in securing a certificate"—this belief, according to Dr. Moyer, being based on facts brought to his notice over a year ago; and,

WHEREAS, Dr. Moyer has neglected to furnish these facts to the committee appointed by the State Medical Societies of Illinois, at a meeting held on April 5, 1907, to investigate into the examinations of the State Board of Health—at which meeting Dr. Moyer was present; and has refused to lay before the State Board of Health the source of his information or any other facts that he claims to possess, although formally requested to do so by the President and Secretary of the State Board of Health; and,

WHEREAS, By these statements Dr. Moyer has reflected indiscriminately upon the personal and official integrity of the members of the State Board of Health without affording them an opportunity to disprove his charges; therefore, be it

*Resolved*, That the State Board of Health hereby demands of Dr. Harold N. Moyer that he present his alleged information to the state's attorney of the county in which the "crookedness" is alleged to have occurred, for investigation by the grand jury, or to the Governor of the state for such action as he may deem proper; and be it further

*Resolved*, That copies of this resolution be sent to Dr. Moyer and to the Governor of the state, and also to the press and medical journals of the state.

[SEAL.]

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To the communication from the Illinois State Board of Health Dr. Moyer has answered as follows:

CHICAGO, June 27, 1907.

JAMES A. EGAN, M.D.,

Secretary Illinois State Board of Health, Springfield, Ill.

*My Dear Sir:*—In reply to your favor of June 24, enclosing a copy of the resolutions adopted by the Illinois State Board of Health at the meeting held on June 18, 1907, I would say that I am gratified that the

Board has receded from its desire to investigate itself. The proper place for these matters to be taken up is the grand jury, which has power to send for persons and papers and to administer oaths. Within the last month the grand jury of Cook County has considered certain matters relative to the State Board, but so far no definite action has been taken. So far as I am concerned, you may be assured that every effort will be made to bring these matters before the proper official body.

Yours very truly,

H. N. MOYER.

## COUNTY AND DISTRICT SOCIETIES

### CLAY COUNTY.

The Clay County Medical Society met at Louisville, Tuesday, June 11, 1907, at 1 p. m. The following members were present: Drs. Fairchild, Gibson, Steely, Finch, Dillman and Duncan. Dr. Fairchild, the president, called the meeting to order. After the transaction of routine business the following officers were elected: President, Geo. W. Steely, Louisville; vice-president, John P. Shore, Sailor Springs; secretary, C. E. Duncan (re-elected), Flora; treasurer, N. W. Bowman (re-elected), Flora. Dr. Geo. W. Steely read a paper on Cholera Infantum. A general discussion of the subject followed, in which all the members present took part.

C. E. DUNCAN, Secretary.

### CHOLERA INFANTUM.

GEORGE W. STEELY, M.D.,  
LOUISVILLE, ILL.

In selecting a subject for this occasion I did not choose cholera infantum with the least idea of giving anything new on the subject. But as the time is near when we shall have to encounter this disease, to a greater or less extent, I thought it would be well to bring the subject before the society.

The physician who is the most successful in the treatment of children is the one who will gain reputation in the neighborhood where he practices. Take a mother with a baby just old enough to be near and dear to her, at the jaws of death. The physician who comes to the rescue and saves the child is the one that family will call upon in similar trials with the older ones. If we desire that our practice should enlarge and expand, let us make baby doctors of ourselves, and success will be sure to follow.

In the consideration of this subject we shall not dwell largely upon the etiology and pathology, but shall confine ourselves to the symptomatology and treatment, since a familiarity with these two essentials is what the doctor needs when he meets a case of cholera infantum at the bedside, and more especially does he need the treatment, for this disease is ordinarily easy to diagnose, but often requires our utmost efforts in its management. This is one of the most common intestinal troubles which prevails with infants or children under three years of age, during the summer months, and often follows acute indigestion in which it frequently has its origin.

There are two important conditions that seem necessary in the production of this disease—temperature and diet. I have not yet been convinced that the origin of this disease is due to a specific micro-organism or milk infection alone, but do believe that many cases have their origin in a variety of germs that produce a chemie or toxic poison in the intestinal tubes and their mucous membrane. Their harmful effects are due to this chemie poison. They elaborate during the summer heat with improper diet, under antihygienic conditions, such as inhalation of noxious atmosphere, especially gases arising from animal and vegetable decomposition, or an atmosphere rendered impure by overcrowding with persons; or impure milk kept in unventilated places, and domiciliary uncleanness. Any or all of these are often predisposing causes to the disease. I doubt if first dentition or teething ever enters into the cause, but do believe that many cases are greatly aggravated by its association with this disease. In many cases in artificially fed babies I believe the origin is due to an imported milk supply. Treatment is often unsatisfactory: when administered judiciously according to our latest methods, one of the most important essentials in the treatment is to see the case early and commence the treatment before the disease has too much the start of you. The course of this disease is very short, and unless we do commence treatment early our efforts will be in vain in the majority of cases.



The treatment may be divided into three divisions: Hygienic, dietetic, and medicinal. Pure fresh air is important in all diarrheal disorders in summer, and especially in this disease. The child should be kept perfectly quiet, preferably in bed, and should be kept cool. Bathing is soothing and beneficial as it produces cleanliness, and at the same time reduces temperature and nervousness. In the initial stage all food should be withheld and not a drop of milk of any kind should be administered, as digestion is arrested and all foods are bound to do harm. When the case is improving and the child desires food, as it rarely does, we should not allow it to have anything beyond a little fresh milk or barley water, ice water, albumen water, toast water, etc. Lime water is a good drink, but all water used should be thoroughly sterilized by boiling, and ice packed around it to cool same. No ice should be placed in the water. Nourishment and liquids should be given often and in small quantities, that they may not irritate the stomach.

The medicinal measures are many and in our selection we should first give those that will empty the alimentary canal the quickest, with the least possible reduction of the vital powers. No other treatment should be thought of until this is accomplished, unless it should be necessary to administer an anodyne or give a stimulant. The emptying of the canal of the offending substance is the only avenue through which we may expect good to come. This is what Nature is endeavoring to do by the incessant vomiting and purging that soon begin when the disease makes its appearance.

If seen early, before the stomach has become irritable, the emetic may prove beneficial, but I seldom ever give an emetic, as vomiting is free enough. The American text-book on diseases of children recommends the washing out of the stomach with warm water containing a teaspoonful of common salt to a pint. Then after this organ has been thoroughly cleansed, give from three to five grains of calomel. I have never yet, however, washed out the stomach of a child that had cholera infantum, but wash out colon with about same solution and starch, and then give calomel, dose according to age of child. The calomel is given for its anti-fermentative action and in order to reach the small intestines, which are inaccessible by the processes of irrigation.

After vomiting has been allayed by irrigation, stimulants may be given by the mouth. I prefer pure whisky or good brandy. If the child becomes thirsty I generally control it by adding four drops of dilute hydrochloric acid to two ounces of boiled cooled water, and give one-half to one teaspoonful every one to three hours as needed. And when the temperature is uncontrollable by sponging, use ice cap. If the stools should show the presence of blood, then I would recommend tannic acid solution, cool, and injected into rectum.

In our selection of anodynes we should choose those that are the least depressing upon the vital organs. We should also give such agents as will overcome the acute indigestion and prevent active putrefaction in the intestinal tube. Opium should be given very cautiously to young children.

To overcome the exhaustion that has been produced by the violent purging and vomiting, in extreme cases, we should give an intravenous injection of a normal salt solution into the cellular tissue of the buttock or thigh, for if given into the colon it is not likely to be retained. When we have symptoms of a relapse, we should administer stimulants, and none have served me better than pure whisky, strychnin, nitroglycerin, and in some cases they should be administered hypodermatically.

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### COOK COUNTY.

#### *JOINT MEETING OF THE CHICAGO MEDICAL EXAMINERS' ASSOCIATION AND THE CHICAGO MEDICAL SOCIETY.*

A joint meeting of these societies was held April 24, 1907, with Dr. J. A. Patton, President of the Chicago Medical Examiners' Association, in the Chair.

Dr. Bayard Holmes read a paper entitled "The Early Diagnosis of Diseases of the Liver and Bile Apparatus," which was discussed by Drs. Robert H. Babcock,

and Joseph M. Patton. Dr. Arthur R. Elliott read a paper entitled "Cardio-Vascular Degeneration—Signs, Symptoms and Results," which was discussed by Drs. Robert H. Babcock, George F. Suker, Joseph M. Patton, W. F. Coleman, and in closing by Dr. Elliott. Dr. F. Kreissl read a paper on "Chronic Affections of the Genito-Urinary Tract and Their Relation to Life Expectancy," which was discussed by Drs. William Cuthbertson and Arthur R. Elliott.

#### DISCUSSION ON THE PAPER OF DR. BAYARD HOLMES.

DR. ROBERT H. BABCOCK:—I was in hopes somebody would rise to make comment on this paper, which I regard as an admirable one. I would only like to emphasize one point to which the essayist alluded, and that is the use of auscultatory percussion and the use of the tuning fork. There are methods of diagnosis which are not extensively used, and which when used in many instances are open to error, as in the case with all methods of diagnosis; but nevertheless, if one has had any experience at all in attempting to outline the liver and gall-bladder and has used these methods, he must bear testimony to the fact that they form a valuable adjunct to the ordinary means of percussion and palpation.

I recall very distinctly a case seen by Dr. Holmes and myself in which the use of the tuning fork enabled us very accurately to determine the presence of an enlarged and distended gall bladder, and was borne out by the operation. The tuning fork is an ordinary tuning fork, and the principle is simply that if one auscultates by means of the ordinary stethoscope over a solid organ, for instance, and the tuning fork be set in vibration, then moved from point to point along the abdominal or chest wall, at first there is a distant note, but the intensity of the sound from the tuning fork becomes suddenly and strikingly augmented so soon as the tuning fork reaches the solid confines of the viscus. This one can reason out by considering the general conduction of vibration along the solid organ. In approaching the gall bladder from the lower abdominal zone, it is sometimes very striking indeed to notice the sudden augmentation in the intensity of the note when one reaches the liver or the gall bladder, especially if the latter be determined.

DR. JOSEPH M. PATTON:—I would like to mention a point in connection with examination of the liver which is often overlooked. That is a variation in the normal situation of the liver that occurs with modification in the physical condition of the right side of the chest. Examiners often fail to appreciate that the liver may materially change its position because of intrathoracic states which cause alteration in and modify the distensibility of the lung.

Not long ago I saw a patient in whom the posterior border of the liver was two and a half inches higher than normal, and the question of some intrahepatic alteration came up. The condition was due to interference with the action of the diaphragm, especially on the right side, because of the presence of a number of small stones in the gall bladder. The gall bladder was contracted. So when we have had conditions of the gall bladder, adhesions of the diaphragmatic pleura, or abscesses in the bottom of the lung, we may have considerable modification of the normal area of the liver. Unless these things are taken into consideration, we will often be led to think there is something wrong with the liver when, in fact, the organ is practically healthy.

#### DISCUSSION ON THE PAPER OF DR. ELLIOTT.

DR. ROBERT H. BABCOCK:—The paper to which we have just listened has touched so admirably upon the various points considered, that although very suggestive as a text for possible discussion, it really leaves very little for one to say without running the risk of repetition. Nevertheless, I would like to emphasize, by expressing in a somewhat different manner, the points made by the essayist, namely, that from the standpoint of the clinician we must recognize two great and really distinct types of cardio-vascular degeneration, the one with normal or but slightly increased blood pressure; the other with abnormal, or markedly heightened blood pressure.

The first group generally comprises those individuals who are spare, more or

less, in whom the vascular degeneration is widespread, and seems to involve the peripheral vessels equally with, if not more than, those of the interior of the body. The arteries may feel hard, pipestem like, nodular, but in some instances the vessels feel comparatively soft to the finger, and the physician who would depend upon palpation of the peripheral vessels for his recognition of the degenerative change going on might be misled by this fact. The recognition of these cases is made by a careful study of the symptomatology and investigation of the vessels of the eye and a study of the heart. In some of these cases there is quite a manifest hypertrophy of the left ventricle. In other cases, however, the heart is not very manifestly enlarged. In fact, on ordinary observation the organ might seem not hypertrophied, and, indeed, occasionally the heart seems to the physician rather smaller than larger. The tones are often clear; but there may be a faint systolic murmur at the apex accompanying the first sound, limited to the apex, and very often there is a systolic murmur in the aortic area, with a sharply accented, though not clanging, aortic second tone. In these cases the sphygmomanometer may register practically a normal blood pressure, or one which borders on the upper limit of normal reading, perhaps 135. I have the case of a man now in which the reading is 134.

The other class of cases are those in which the cardio-vascular degeneration is not very apparent, perhaps, but there is a persistently high blood pressure. The accessible vessels are thick and roll under the fingers: they are fibrous and leathery, and the heart is generally enlarged in all its diameter. If there are no murmurs present, there is apt to be a clanging aortic second tone, and there may or may not be a systolic murmur in the aortic area. In some of these cases careful percussion will enable one actually to determine some dullness over the arch of the aorta at either side of the manubrium sterni, showing some dilatation of the aorta; and the aortic second tone is especially marked.

There are a great many systematic differences in these cases, but the question arises: What constitutes in reality the symptomatic differences in these two groups? It seems to me the differences can be referred to the blood pressure. I will not attempt to comment upon the etiology of these cases. There probably is a very distinct etiological factor in each class, but the symptomatic differences seem to me to be referred largely or entirely to the differences in blood pressure. In the one case the individual is well, so long as his blood pressure is high, although not dangerously high for him. When, however, the resistance which the heart has to overcome reaches an extreme degree, the patient begins to manifest symptoms of distress, and these symptoms are, in most part, of cardiac inadequacy, although in other cases they may be cerebral. In the first group, the safety of the individual and the very lack of pronounced symptoms seem to me to be explained by the fact that the blood pressure is not abnormally high. He is not capable perhaps of as much vigor as formerly, and yet it is quite remarkable how active such an individual may be. He bears illnesses, especially infections, as Dr. Elliott has said, badly, on account of the enfeeblement of circulation and the destructive changes which have taken place in the various organs in consequence of the sclerotic process.

One is a man of 52 years of age, with a blood pressure of 208. At present is less vigorous than usual, his blood pressure has fallen, and it is by restoration of the blood pressure to something like a normal condition that his vigor increases, just as with the other class of cases the improvement in symptoms and the prevention of danger depend upon a decrease in blood pressure, a diminution in blood pressure, or, at all events, maintenance of the blood pressure in *statu quo* at a point something more like what might be called normal to the individual. If not trespassing too long upon your patience, I have in mind two cases I have seen within the last two days. They illustrate these two types beautifully.

One is a man of 52 years of age, with a blood pressure of 208. At present there are no symptoms, but from an examination of the heart, of the urine, and of the vessels, it is apparent that the man is developing cardio-vascular degen-



eration, which, before many years, will reach a degree that will cause him serious embarrassment.

The other individual is a man of 61, spare in build, with not very stiff vessels, yet they are recognized as somewhat sclerotic, and who has the cardiac findings I have spoken of. The area of dulness does not exceed the normal, the apex beat being a gentle tap in the normal position. There is a feeble systolic murmur, with the first tone at the apex, and the second aortic tone is accented. There is also an aortic systolic murmur, and the blood pressure is 112. When he came to me a few months ago complaining much of debility, his blood pressure was something under 100, but under treatment it has risen now to what may be called normal for him, and with that his whole energy has come back and he declares that he is as young as he ever was.

DR. GEORGE F. SUKER:—It is gratifying to note that Dr. Elliott has given more than passing notice to the value of the ophthalmoscope as an aid in making an early diagnosis in so-called arteriosclerosis. It is particularly in this vascular lesion that the general practitioner can derive many a valuable point—both prognostic and diagnostic—when it comes to determining early manifestations of arteriosclerosis. The eye, being one of the few terminal organs, supplied with end arteries, offers the only direct means for the inspection of any changes that may ensue in both arteries and veins. Arteriosclerosis is peculiar in so far that it very frequently affects the terminal vessels long before the larger ones are involved; it is for this reason that such organs as the heart, kidney, brain and eye give the first evident lesions of arteriosclerosis. It is not uncommon to find marked changes in the vessels of the fundus oculi long before corresponding changes are noted elsewhere. Not only is the caliber of the vessels changed, but frequently small hemorrhages into the various ocular coats ensue, and because of the interference in the nutrition the lens, choroid, the retina and optic nerve are prone to suffer, thus always resulting in loss of visual acuity.

The width of the blood current corresponds to the width of the vessel, because of the thinness of the latter. Therefore, any increase in thickness will change the appearance of the width of the blood column. And because of this sclerotic process which invariably implicates the tunica intima and media, the underlying vein is often compressed, thus you will have a dilatation at the proximal side and an attenuation on the distal. Very frequently ampulliform dilatations are noted in the veins. Quite often the arteries have an appearance not unlike that of miliary aneurysms, because of the irregular sclerotic process. That is to say, this process is not uniform throughout the entire length of artery or vein, but may be limited to certain portions only; and this is particularly true of the vessels supplying not only the fundus oculi, but also of the extra-ocular vessels.

As far as the diagnostic value or prognostic import is concerned, the pinpoint hemorrhages in the retina accompanying an arteriosclerotic process, are not as pertinent as those seen in the conjunctiva. No real cause has ever been assigned why this should be so, and yet it is a clinical fact that patients suffering from recurrent conjunctival hemorrhages are more apt to have cerebral hemorrhages than those who simply have small pinpoint retinal hemorrhages. In this connection it may not be amiss to state that unless the retinal hemorrhages are directly in the macular area, no interference in visual acuity obtains.

In the beginning of an arteriosclerotic process, the conjunctival vessels may frequently be made to assume a beaded appearance by instilling one or two drops of an adrenalin solution. This will more markedly contract the portions of the vessel walls which are free from the sclerotic process, and therefore will give you this beaded appearance. It is not pathognomonic, but certainly very suggestive of angiosclerosis.

In cerebral arteriosclerosis an examination of the fundus vessel is very important in so far that it will show to what extent the process has advanced. In these cases there will always be a retinal pulsation, and by asking the patient to bend the head well upon the chest and examining the fundus the pulsations



are markedly increased. In addition, the arterial tension of the temporal vessels with the head in the flexed position is higher than when the latter is erect.

As the majority of patients suffering from an incipient senile cataract first consult their family physician, it would be wise on his part to make a thorough investigation of the arterio-vascular system, for the largest percentage of incipient senile cataract is due to a beginning arteriosclerosis. Many of these cataracts can be prevented from maturing by the proper treatment of this arteriosclerotic process. For, it is well known, that if early recognized and well taken in hand, the results are very encouraging. When, however, the arteriosclerotic process has once been fairly firmly established, little can be achieved other than holding the progress in check. It is for this reason that an early diagnosis is so important, and therefore any means which can render any definite or positive data is to be welcomed rather than spurned.

DR. JOSEPH M. PATTON:—The paper of Dr. Elliott illustrates very nicely the point at which we have arrived in the history of these degenerations of the vascular system. Beginning with Bright, who ascribed them to diseases of the kidney and was the first one to describe the kidney changes occurring in this association, we then have the theory of Traube as to the effect of cardiac hypertrophy in causing irritation of the vessels and producing vascular changes. Then we have the theory of Gall and Sutton, or the effect of arterio-capillary fibrosis in causing the heart and kidney changes and later the theory of Ewald that these changes were due to hypertrophy of the muscular tissue of the media of the vessels. Still later we reached a period when we recognized the effects of toxemia of various kinds, inducing the various degenerations, as illustrated by the paper to-night.

We may go, perhaps, one step further, and agree with Huchard that we have a presclerotic stage of these diseases, which, although it has no demonstrable pathology, yet is an actual beginning of this process and constitutes a very curable stage. These diseases or degenerations are undoubtedly due to the effect of toxins, and to irritation of the vascular channels, and according to this authority, if we can recognize the presclerotic stage, we can cure these patients by proper hygiene and proper diet, also by the use of vaso-dilators temporarily, etc. When we reach the stage of demonstrable pathology, which has given rise to actual clinical symptoms, we probably have reached a stage which is not curable, and can only be relieved.

I think too definite conclusions are likely to be drawn from the blood pressure in this disease as to the exact nature of the case. We are beginning to realize, as you have heard, that there are different types of cases in which we have a high and a low blood pressure; but to draw definite prognostic conclusions from the blood pressure, unless the observations are carried over a long period of time, is apt to lead one to false conclusions. The cases which terminate by sudden death from apoplexy, and such results, are usually not the ones that give us definite indications of peripheral changes in the vessels. They are probably cases with a local nodular endarteritis, and its resultant changes in all coats of the vessel, which is not manifested by external evidence in the peripheral arteries, or by continuous maintained conditions of blood pressure. After all, putting aside those cases of more or less localized degeneration of the blood vessels, the question comes up as to the condition of the heart muscle and its relation to the general blood pressure and circulation. In some cases, as has been said, we have enlarged hearts, and in other instances we have hearts of moderate size. We have a patient who will give us a well-marked systolic murmur at the base, and a small heart. Another patient who will exhibit perhaps a murmur, or may be no murmur, and a large heart. In the former, the murmur has really nothing to do with the case, except that it is an indication of involvement, more or less, of the first portion of the arch of the aorta. It does not necessarily indicate stenosis, but may be indicative of disease in the beginning of the arch of the aorta.

What effect does the condition in the wall of that portion of the arch, from

which the nutrient vessels of the heart spring, have on the myocardial circulation? We may have a large heart with or without a murmur, the size of the heart being due to the peripheral resistance more than anything else. The first portion of the arch of the aorta may not be involved, and unless we have actual disease in some portion of the coronary artery, we may have a good circulation, and although the heart may be large, the prognosis may be relatively very good; so that, after all, it reverts to the relation of the heart to the general circulation and the condition of nutrition of the heart muscle. And those things can only be balanced in our estimation by a continued study of the factors in the case, and the condition of the heart muscle in its relation to the blood pressure. The blood pressure must be observed over long periods of time; it is necessary to have a number of different observations made under various conditions before we are justified in coming to a definite conclusion as to the effect which blood pressure is going to have on the future of the case.

DR. W. F. COLEMAN:—The essayist asked me to be here to make some remarks on his paper. I came more to learn than to talk, and I must say that from such a classical description of vascular degeneration, I have learned much.

Some ancient history might not be uninteresting to the members present. In 1869, I studied under three remarkable men, Hutchinson, Hughlings Jackson, and Sutton in the London hospital. At that time Sutton had announced that Bright's disease was due to arteriosclerosis.

To emphasize what Dr Suker has said with regard to the usefulness of the ophthalmoscope in diseases of the eye. I would mention that Hughlings Jackson studied the head of the optic nerve with the ophthalmoscope, and it was he I believe, who first recognized the fact that a brain tumor causes a triad of symptoms—vomiting, headache, and *choked disc*, and the most important is choked disc. This is so important because many a patient who has marked choked disc has good vision, and therefore does not consult an oculist. On the other hand, the general practitioner, the surgeon, or neurologist did not know how to use the ophthalmoscope and did not recognize the most important sign in brain tumor, so the patient fell between two stools. (Hutchinson then tentatively announced that tobacco and alcohol cause toxic amblyopia.)

It is hardly necessary for me to point out the necessity of the general practitioner using the ophthalmoscope for diagnostic purposes in cases of cardio-vascular degeneration, Bright's disease and brain tumor. I shall confine my remarks largely to the changes in the eye due to arteriosclerosis in Bright's disease. I recall a few cases in which a diagnosis of Bright's disease or interstitial nephritis had not been made, the patients having been under the charge of a number of physicians, without there being apparently a trace of albumin or casts in the urine. The renal specialist well knows that certain cases of nephritis may present themselves without those signs. In 1875 a man came to me saying that his sight was failing. On examination I found the characteristic starlike white circle around the macula, as in Bright's disease. He had albumin in his urine. He had an hypertrophy of the left ventricle. There was also some valvular lesion.

This condition of the eye offers a prognosis generally as to longevity, of less than two years, although a few patients may live for ten or fifteen. I told him that he had Bright's disease, and he said, "That is impossible." He had been examined six weeks previously, and had passed an examination for insurance. I said, notwithstanding, every man ought to make his will and be prepared for the future. If he does not die, it will do no harm. Well, that man died in three months. The head examiner of the life insurance company wrote and asked what I had found. I replied "That is my affair, and that of the patient's family." I was not his medical examiner. The appearances of degeneration in the eye which accompany Bright's disease are generally characteristic, though they may be due to other conditions, such as syphilis, diabetes, and other various toxic causes. We can not be certain of the diagnosis, but if we find pathological changes in the eye and consider the general symptoms, we are not apt to be

mistaken, and in making a prognosis of a short lifetime, I do not remember to have been mistaken. The condition is most apt to be binocular, although it may be monocular, and it is almost invariably found in the retina. The nerve head suffers later. In one case, recently seen, there was simply a monocular optic neuritis, and by exclusion. I made a diagnosis of Bright's disease which the essayist corroborated, and that patient died within six months. The slight hemorrhages in the eye accompanying Bright's disease are very important; but hemorrhages dependent on other causes are more important as to the prognosis of cerebral hemorrhage. In every case of hemorrhage or ecchymosis of the conjunctiva, we should examine the patient carefully for albumin in the urine, and as to other general symptoms, because that person, having a hemorrhage without any particular cause, apparently, may have a serious lesion.

DR. ELLIOTT (closing the discussion):—With reference to the matter of prognosis, which has been referred to by Dr. Babcock and Dr. Patton, and also by Dr. Coleman, I wish to say that in no branch of medicine is the science of prognostics such an uncertain quantity as in cardio-vascular diseases. Prognostics is a most difficult branch of the science of medicine at all times, and it is impossible in cardio-vascular degenerations to draw definite conclusions in forecasting the future of a given case. What is said in the way of broad generalization must be discounted, because it can not be applied definitely to any single case. I think one needs to have much experience in the observation of these cases to foretell what will happen to any individual. But the element of blood pressure it seems to me, notwithstanding Dr. Patton's exception, is the most important prognostic element in cases of vascular degeneration. Many of these individuals with arteriosclerosis live to a good old age, even with high blood pressure, and I have some under observation. A fact which constitutes a very bad element in the insurance of such lives is that if they should be overtaken by intercurrent affections, they do not have a good chance of recovery. They have a bad cardiac structure to carry them through an infection, and the cases which have this cardio-vascular degeneration quite marked, are liable to slip up any moment; they have an insecure tenure of life, and the man who is apparently well to-day may be in his coffin to-morrow as a result of apoplexy, heart failure or of developing uremia. I have seen uremia come on in a night without any warning. Apoplexy, too, is exceedingly common. If a man does not succumb with his first attack of apoplexy, he may live for years. I have one such patient who had his first stroke of apoplexy three years ago, and he never had a blood pressure less than 185. In forecasting the future of any of these individuals, we should bear in mind that these broad generalizations are gathered from accumulated experience.

#### CHRONIC AFFECTIONS OF THE GENITOURINARY TRACT AND THEIR RELATION TO LIFE EXPECTANCY.\*

F. KREISSL, M.D.

It is impossible for a paper, the title of which covers such a broad subject, to be complete when presented on this occasion, therefore I attempted only to submit a few important features which might be of interest from the standpoint of the medical examiner. It is also evident that acute conditions are eliminated, since these as a rule do not present themselves to him. Neither did I consider chronic conditions, the symptoms of which are so pronounced as to be immediately recognized without any difficulty.

Your attention is chiefly invited to a few lesions, their complications and sequelæ, of whose existence perhaps the person to be examined is not aware, whose recognition, however, by the examining physician is of paramount importance. Such conditions are sometimes readily discovered in the eustomary examination, at other times they require the whole array of diagnostic means, and then again with all these they might only be suspected. Some of them are congenital defects,

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some acquired, some originate in the urogenital tract, others have their seat without and produce local symptoms therein. A few are of a trivial nature; the others represent serious lesions.

Well-known are the dangers associated with an undescended testicle. They may arise from incarceration or from suppuration following a trauma or a gonorrhea, and subsequently terminate in a fatal peritonitis. The tendency to malignancy, carcinoma or sarcoma, peculiar to ectopic testicles, is also recognized. The same tendency is attached to an originally benign lipoma, fibroma or cyst of the spermatic cord and of the tunica vaginalis.

Congenital diverticulæ of the bladder are quite rare. I have seen only two. They are harmless unless an infection occurs, in which event they become a formidable menace due to the local, almost incurable suppuration, consequent stone formation, and renal infection. The presence of a congenital diverticulum may be anticipated if, excluding other palpable reasons, comparatively large quantities of urine are voided in two stages with a few minutes intervals. The cystoscope of course would furnish unmistakable proof.

Prolapse of the kidney is often looked upon as an unimportant condition and treated with indifference, yet it has been shown conclusively that renal dislocation is followed by prolonged pelvic congestion with its long chain of disturbances in the gastrointestinal tract, the nervous system and the genitourinary organs. It also produces irreparable structural changes, chiefly hydronephrosis, cystonephrosis and cystopyelonephrosis. While not necessarily fatal, kidney prolapse is a serious condition because of the possibility of adhesions with the liver, gall-bladder, transverse colon and the displacement of the duodenum and stomach.

Chronic gonorrheal urethritis may exist for years without perceptible inconvenience, even without a noticeable discharge, the only evidence of the latter being a few shreds in the urine. Sometimes there are no shreds at all, the urine presenting a gross normal appearance, until upon some provocation or following a massage of the urethra, prostrate and seminal vesicles, more or less abnormal material reappears. And yet we all know the dangers associated with such a latent process. We know the frequency of gonorrheal infection of the system, of the renal pelvis and of the kidney proper. Fortunately we possess a pretty reliable procedure to cure the gonorrheal infection, which consists in curing the gonorrheal focus. But those familiar with the subject know only too well that it is almost impossible to dislodge the gonococcus after it is firmly entrenched in a seminal vesicle, wherefrom infection of the genitourinary tract occurs again and again, gradually producing the whole circle of neurasthenia and carrying in its trail a low vitality and resisting power.

Pyelitis, if recognized early and if its cause can be permanently removed, is not a very grave disorder, but the symptoms are sometimes so obscure as to prevent an early diagnosis before the kidney parenchyma has become seriously damaged. I have seen cases in which the urine from the bladder was macroscopically clear, showing under the microscope but few pus cells. I have found the same condition in the urine collected from the ureter, until upon entering the renal pelvis pus loaded urine commenced to flow from the ureter catheter. The expectations entertained for the efficiency of pelveo-renal lavage in pyelitis have not altogether materialized, and I considered some of the radiant reports on this subject as fanciful exaggerations. After having tried this method for several years in many cases and in the various stages, I have been forced to the conclusion that the field of its usefulness is a rather limited one for several reasons.

First.—The majority of the cases of infection of the renal pelvis are of a hemotogenous or metastatic character, consequently we deal with a pyelonephritis and not with a pyelitis. The process commences in the kidney parenchyma whence it infects the renal pelvis.

Second.—The ascending renal infection is much rarer than the descending one. It spreads rapidly from the pelvis into the parenchyma, and therefore little can be expected from a local application to the pelvis.



Third.—The underlying causes of the trouble are mostly such as to demand surgical intervention, for instance, stone, stricture, tuberculosis, etc.

Another condition, perhaps not always recognized by the medical examiner, is urethral stricture, a percentage of which is responsible for serious and sometimes irreparable lesions in the urinary tract. I only remind you of the concentric hypertrophy of the bladder, the dilation of the ureters, and the renal pelvis, and of the atrophy and degeneration of the renal parenchyma caused by the backing up of urine. While the majority of ureteral coarctations is due to a preceding gonorrheal infection, there is a fair percentage of traumatic and congenital strictures, and it is especially the last named variety of which the owner might not be aware at the time he is applying for life insurance, and which, on account of the absence of visible signs in the urine so common to other strictures, will not be suspected by the examining physician.

Sometimes ulcerations of the bladder wall will for a while at least give the patient none, or so little trouble, as to remain unnoticed, and the urine may at the time have a normal macroscopic appearance. Periods of exacerbations with a cloudy or bloody urine alternate with remissions. However, a careful microscopic study of the sediment will always show a small amount of pus and blood cells and tissue shreds in the apparently clear urine. Some of the ulcers readily respond to the proper treatment, others require more or less radical surgical measures not quite free from danger and occasionally followed by extensive cicatrization and loss of contractile surface. Others, like the perforating ulcer or those having a tendency to malignancy, constitute a real menace to life.

That vesical and renal calculi, uric acid and lime stones, may occasionally grow to quite formidable proportions without distinct subjective symptoms or affecting the gross appearance of the urine is a frequent experience with every surgeon. The same is observed in vesical tumors, but the urine sediment contains almost invariably the evidence of a pathologic condition in these cases. I say almost invariably, because occasionally, dependent on circumstances, even the sediment, especially in renal calculus, appears to be normal.

Vesical calculi, if recognized and properly disposed of, are not a very serious or dangerous ailment, neither are renal calculi, but for the constitutional tendency and local condition in the kidney which favor the recurrence of the trouble, invite infection from without and menace the integrity of the organ.

That malignant tumor in the bladder or the kidney with very few exceptions shortens the life is perfectly clear. About the benign tumors the opinions are divided. It is true that some of them have been observed for many years in the bladder of patients who appeared to be perfectly healthy otherwise, others having been successfully removed have not recurred. Others have recurred several times, and again others have changed into malignant growths. From all that we know, or rather from what little we know about these tumors, I would consider every one of them a serious disorder.

Tuberculosis in the genitourinary tract may remain quiescent for years, yet nobody denies that next to malignant tumors, tuberculosis means a very grave disease. The unaccountable appearance of a purulent urine, the failure of the usual therapeutic measures, the absence of pyogenic germs, or the persistent acidity of a purulent urine in the presence of urea decomposing bacteria, will arouse the suspicions of the attending physician. A staining for tubercle bacilli or an inoculation test will clear the situation. But the medical examiner as a rule encounters tuberculosis of the urinary tract when the urine is clear and the patient of a healthy, robust appearance, and he is then not in a position to suspect the condition unless a nodulation in the epididymis or the spermatic cord is incidentally palpated.

Another grave condition easily overlooked is the paresis and paralysis of the bladder of spinal or cerebral origin. Dysuria, urine-retention and incontinence are very often the initial manifestation of locomotor ataxia at a time when a close examination might demonstrate but slight evidence of Romberg's symptom, the knee jerk and pupil rigidity. This nervous dysuria—the difficulty of empty-

ing the bladder in the absence of an anatomical obstruction—can be caused by sphincter spasm, by paresis or paralysis of the detrusor. Sometimes both conditions appear combined. Symptoms of dysuria are also observed in inflammatory affections of the urinary tract in certain diseases of the rectum and after operations therein, but these as a rule do not present themselves to the medical examiner.

The incontinence of the neurasthenic is not a true incontinence. It is a postmicturial dribbling because of the absence of what the French surgeons call so expressively "*A coup de piston*," the forcible expulsion of the last drops of urine commonly observed in normal men. The neurasthenic individual with symptoms of spasms contracts the muscles of the perineum and the root of the penis during the whole act of micturition, whereby the power for the final "*coup de piston*" gets lost. A man with the evidence of parietic or paralytic incontinence always calls the abdominal muscles into action, sometimes to the extent of crouching or sitting down, leaning forward and even assisting with his hands pressing on the abdomen in order to mechanically empty the bladder.

It also should be borne in mind that neurasthenic or nervous individuals sometimes are not able to urinate in the presence of others, or at least do not completely empty the bladder, but if barring all these causes, a person with a full bladder finds difficulty to start the flow of urine even if left alone in a room, if after urination the bladder upon palpation still appears more or less filled, if the person, upon inquiring how often he urinates, answers that he feels the desire but once or twice in twenty-four hours, it becomes imperative to look for further symptoms of a spinal or cerebral lesion.

That cloudiness of the urine, the presence of albumen or blood do not always indicate serious or life menacing symptoms is well known. Phosphaturia, for instance, may be nothing worse than the expression of a secretory neurosis, while on the other hand it may denote a serious essential disorder somewhere. Here I remind you only of the phosphaturia as a symptom preceding or alternating with diabetes.

The views regarding the clinical importance of bacteriuria are still divided. Yet we can readily see how the presence of even non-pathogenic germs in the bladder or kidney may produce abnormal fermentation and favor the formation of concretions, and in this sense it can not be considered an insignificant disorder. Of the colon bacillus we know that it is capable of producing cystitis and pyelitis, although it is sometimes found in large numbers in a pus free urine without a sign or symptomatic indication of cystitis or infective nephritis. For more detailed information on this subject I refer to Croftan's Clinical Urinology and A. R. Elliott's short but instructive paper, both of whom I have quoted herein.

Hematuria and hemoglobinuria are justly looked upon as evidence of serious derangements, yet sometimes it might indicate nothing more than a cold, a preceding slight blow or a symptom of malaria. I have seen several cases of true unilateral malaria hematuria which promptly yielded to the administrations of quinin. Of more than ordinary interest is this true unilateral hematuria in malaria. The more common form in malaria is hemoglobinuria and it is generally accepted to be bilateral. In each case mentioned above I was able to demonstrate by ureter catheterization clear urine from one kidney and bloody urine containing numerous red cells from the other.

A similar significance attaches to the presence of albumen in the urine of patients attacked with chronic prostatitis or seminal vesiculitis. The diseased prostate, like the diseased kidney, secretes albumen and this secretion might escape through the deep urethra into the bladder and be mistaken for that of renal origin. The presence of albumen in the urine in spermatorrhea has also been thoroughly and satisfactorily discussed in a paper of Dr. Elliott to which I refer you.

In reviewing these rather limited remarks it must be admitted that the task of the medical examiner in diagnosing certain urinary lesions and determining

their degree of severity is a very difficult one. He is at a decided disadvantage compared with the general practitioner and the genitourinary specialist because he is not in a position to employ all the known diagnostic means and the exploratory instruments in daily use by the latter. Yet I think that there is opportunity for him to widen his diagnostic limitations.

First, by a careful inspection and palpation of the body and the external parts of it to which this paper refers.

Second, by watching the character, size, shape and force of the stream of urine passed in his presence.

Third, by attaching more weight than is customary to the microscopy of the urine. That by the presence, number and form of epithelia and connective tissue shreds in conjunction with all the other features in the case, different pathologic conditions can be diagnosed, such as ulceration, suppuration, trauma, tumors, cirrhosis of the kidney, atrophy of the kidney and severe local inflammation, has been quite extensively demonstrated by Heinzman in his book on Urinalysis and Diagnosis.

1020 Stewart Bldg.

#### DISCUSSION ON THE PAPER OF DR. KREISSL.

DR. WILLIAM CUTHBERTSON:—Dr. Kreissl in his paper gave us several pertinent hints in regard to the genito-urinary apparatus. Fortunately for the life insurance companies, the diseases which he has enumerated do not give serious trouble or prove fatal until the later years of life. In making a diagnosis in these cases of chronic affections of the genito-urinary tract, if we ask the applicant for insurance whether he has ever had venereal disease, nine hundred and ninety-nine out of a thousand will say no.

Dr Kreissl has given us valuable hints as to watching the urination of the patient. A great many of the companies require specimens of urine; yet how few practitioners examine as to the manner in which that urine is passed. Consequently, I think it becomes obligatory to watch the urine as it is passed by the prospective applicant for insurance and to know or note the different variations from the normal which Dr. Kreissl has pointed out. Fortunately, again, for the companies, when pus is found in the urine, or where there is a history of blood in the urine, or a history of symptoms of stone in the bladder or kidney, we postpone further investigation; consequently the question of immediate mortality, or the question of diagnosis of the exact pathological condition does not fall to the medical examiner. But the medical examiner should more frequently than he does advise the applicant of serious symptoms which may present themselves to the examiner, and put him in a way by which he may have his case attended to, so that a very serious, or if neglected, fatal disease, may be cut short early.

DR. ARTHUR R. ELLIOTT:—Referring merely to one point Dr. Kreissl has brought out, that is, the condition of bacteriuria, frequently the medical examiner has a specimen or specimens of urine submitted to him by the applicant for insurance that are cloudy; that do not contain albumin nor pus by microscopical examination, yet the urine is cloudy, with a turbidity that can not be filtered out. What bearing has this condition of bacteriuria, which is usually a colon bacillus bacteriuria, on longevity? We see these cases go on for many years in an unchanged condition, without there being an acute exacerbation of the symptoms. Possibly in aggravated cases there may be an epididymitis for a few days which subsides under rest, to be revived again in a year or two, and always with bacteria in the urine meanwhile.

In the last two or three years, since I recorded the observations so kindly referred to me by Dr. Kreissl, I have come across some significant general manifestations in bacteriuria. Recently I saw a man who had bacteriuria, from the history he gave, from ten to twelve years, and he had it when he came to me. He came to me on account of cerebral symptoms—dizziness, loss of visual adjustment, so that he could not estimate distance, and headaches. He likewise had



a sense of general insecurity. I found him suffering from toxemia, with quite well advanced vascular sclerosis, and in the fundus oculi there were quite marked choroidal changes. There was a distant connection between the visual disturbances and ocular findings, and the bacteriuria, as was proved by successful treatment of the latter. I believe in these cases of bacteriuria there is a constant low grade toxemia the result of absorption from the urinary mucosa and from the prostatic apparatus, where active infection exists, of the toxic products of bacillus coli communis and other saprophytic bacteria. Such patients can not be considered good subjects for insurance.

#### CHICAGO MEDICAL AND CHICAGO NEUROLOGICAL SOCIETIES.

Joint meeting of the Chicago Medical and Chicago Neurological Societies, held May 1, 1907.

In the absence of President Webster, Dr. Henderson, president of the Northwest Branch of the Chicago Medical Society, introduced Dr. Charles L. Mix as chairman of the evening. There were 75 members and visitors in attendance. Papers were then read as follows: Tic, Diagnosis and Treatment, by Dr. Hugh T. Patrick. Symptomatology of Chorea, by Dr. Harold N. Moyer. Diagnosis of Chorea, by Dr. Sanger Brown. Treatment of Chorea, by Dr. D'Orsay Hecht. These papers were discussed by Drs. Julius Grinker and L. Harrison Mettler..

#### DISCUSSION.

Dr. Julius Grinker:—There are a few things I would like to add to what has already been said, although the subject has been very thoroughly covered by the gentlemen who preceded me. Chorea is a very common disorder; and yet we do not know all about it. Ordinarily, chorea is easily recognized, provided the symptoms are pronounced. There are atypical cases in which the neurologist has to rely on unusual or ill-defined symptoms, and I wish to point out a few things we should look for in every case of chorea.

It has already been emphasized that the jerking in chorea are of two types, spontaneous, that is, when the patient is at rest, and those that occur during voluntary movements. We might easily make four types of these irregular movements or choreic twitchings: 1, Choreic twitchings occur as soon as the patient performs a voluntary act; 2, irregular twitchings, continuous during rest, cease upon movement; 3, twitchings that are constant at rest, but aggravated by movement, and 4, irregular jerks that occur both at rest and on volition. We observe a patient, see no twitchings and are satisfied there are none. Ask him to extend his finger and put out his tongue and twitchings promptly appear.

Our greatest difficulty will be encountered in differentiating between chorea and tic, which Dr. Patrick has also told us how to do. It must not be forgotten that tic sometimes follows genuine chorea. The preceding condition may have been a Sydenham's chorea in a neurotic subject. This forms the starting point for a genuine tic. We have occasionally observed tic and chorea in the same patient. The chorea got better, but the tic remained.

There are several other symptoms besides twitchings. If you examine carefully you will find in every case of chorea some myasthenia, which may be pronounced or mild in degree. The muscular weakness may exist either with or without the choreic twitchings. In addition, there is usually some inco-ordination, an ataxia, which is as genuine as that of locomotor ataxia. If you ask a patient to walk a crack or make a quick turn, you will notice the same sort of inco-ordination as seen in the tabetic.

Another symptom, one not usually mentioned and not spoken of to-night, is the associated movements which occur in chorea. If you ask a patient to make a fist with one hand, he instinctively makes one with either hand. This is a symptom nearly always seen in cerebral infantile paralysis, either hemiplegia or diplegia. If you will look for this symptom you will find it in many cases of chorea, and it may aid greatly in the diagnosis.

Then there is intermittency of the muscular contractions. If the patient grips



your hand he starts off fairly well; he exerts some power, but after a few seconds his muscles relax and he again reinforces the contractions, then the tendons again relax and so on.

Another symptom that is of value when found is the peculiarity of the knee-jerk: You strike the patellar-tendon and the limb flies up, but it has a tendency to stay up; it does not come down as in health; in other words, there is a discrepancy between the up-and-down strokes. The tendency is for the up stroke to be prompt and the down stroke to be retarded. I have found this symptom in about 25 per cent. of my cases.

Dr. L. Harrison Mettler:—I had hoped that some of the members of the Chicago Medical Society would discuss this subject of chorea. It is evident from what has been said, and from what we read, that our knowledge of chorea is quite indefinite, although as a clinical phenomenon it is probably one of the most common of all neurological diseases that the practitioner meets with. It is a difficult thing to bring anything new to the profession in the present state of our knowledge. I like the name Sydenham's disease better than that of chorea.

It has been said that chorea is not an interesting disease. I wish to contradict that. It is one of the most interesting diseases if we get at it in the right kind of way. We are to-day overwhelmed with observations and facts; but what we want are correlations. We want to know more about this symptom which passes under the name of *chorea*, this dancing of the muscles, which we see, not only in infective, but also in hysterical states. We observe it in Freidreich's disease; we see it in posthemiplegic and prehemiplegic states; we note it in cases of idiocy. We are familiar with various mental conditions simulating these motor manifestations. We see it closely simulated by the so-called tics.

Now, what we want to know is, what is the correlation between Sydenham's infective process, known as chorea, and the other forms which are known as inorganic, psychic and other diseases with choreic symptoms. We want to know the characteristics of one symptom chorea, with its slight variations here and there, as found in various pathological conditions. Until we study it upon that basis we will have everlasting confusion, in my judgment, in regard to the symptoms and treatment of this disease, so-called chorea.

I would like to see the term chorea banished or placed along with such terms as apoplexy, paralysis, headache, hydrocephalus and a lot of other terms we use that mean very little. I wish we could learn to speak of Sydenham's infection or Sydenham's disease, meaning one form only and always keeping it in mind, and not talk about things which have no relationship with an infective process. If we talk about tics, I wish we could get rid of the idea that they have any relationship to or connection with chorea. Tic is purely a psychoneurosis. The jerkings belong to that class of movements which we see in mentally defective children. We have here nothing to do with an infective process such as we recognize in Sydenham's disease. When we learn to regard it on this basis, we will be in a position to better understand the nature of the disease and apply a more rational therapy.

I wish to emphasize what I was glad to hear Dr. Hecht speak about, namely, rest and isolation. I carry this out elaborately. I put my patients in a room by themselves; give them a special nurse.

It may be interesting to some of you, who have not studied the matter closely, to know that these tics, which Dr. Patrick has so ably differentiated for us and discussed, are being considered in the light of pure psychoneuroses. It has been thought that they represent, in a way, like the appendix in man, a sort of vestige of our evolutionary development; and that these tics and tic movements represent dormant activities of ages back in the evolution of the animal, which under some stimulus, such as a certain condition of disturbed sensation, are provoked into actual expression. This is rather an interesting hypothesis, and one that has been advanced by some of the modern physiological psychologists.

## CHICAGO MEDICAL SOCIETY.

A regular meeting of the Chicago Medical Society was held May 8, 1907, with the president, Dr. George W. Webster, in the chair. Dr. E. F. Snodacker read a paper entitled Extirpation of Lachrymal Sac; Presentation of Cases, which was discussed by Drs. Nance and Suker. Dr. William Fuller reported a Case of Ruptured Achilles Tendon. Discussed by Dr. Ryerson, and in closing by Dr. Fuller. Report of a Case of Rupture of the Uterus Two Weeks Before Term Through a Cesarean Cicatrix, by Dr. Charles E. Paddock. Dr. Julius Grinker presented the following cases: 1. Incipient Syringomyelia. 2. Progressive Muscular Atrophy of the Peroneal Type. Discussed by Dr. Adolph Gehrmann and the discussion closed by Dr. Grinker. Dr. C. O. Young presented the following cases: 1. Carcinoma of Neck. 2. Cystic Atheroma of the Neck. 3. Cancer of the Stomach. All three cases operated on. Discussed by Drs. Fuller and in closing by Dr. Young.

## DISCUSSION ON DR. SNODACKER'S PAPER.

Dr. Willis O. Nance:—I regret that I did not arrive in time to hear all of the essayist's remarks. The operation he describes is a modification of a procedure in vogue many centuries ago. As the pathology of dacryocystoblenorrhoea is better understood the surgeon will better appreciate the utter uselessness of the probe and syringe treatment in many of the chronic cases. When one takes into consideration that in one-third of these cases there is partial obliteration of the canal, and in one-fourth more there is total obliteration of the canal, it is easily seen that the treatment usually pursued will, in the average case, be ineffective.

The essential point in operating is to be painstakingly thorough. Unless every particle of the mucous membrane which is diseased is removed there is likely to be a partial restoration of the same and a recurrence of the suppurative process. Therefore, in operating, one must be particularly thorough in removing all of the diseased mucous membrane. In connection with the cutting operation the use of the galvano-cautery is of value. In the operation one must not be content with removing merely the sac, but the point of the galvano-cautery should be thrust down into the nasal duct as an essential part of the operation.

The doctor speaks of the use of the aneurismal needle as a part of his method. I had known of this being used in years gone by. I can not at present recall the name of the gentleman who first employed it, but it has been in use quite a number of years. I remember reading of it in the *Archives of Ophthalmology*, I believe, a number of years ago.

The indications for the operation the doctor suggests are classical, and I agree with him as to the essential points, particularly in regard to those cases that can not attend regularly for treatment; patients living out of town, for instance. In such cases the operation of extirpation is indicated. The results of the operation are usually eminently satisfactory.

Dr. George F. Suker:—This class of cases often first falls into the hands of our colleagues. With the passing of the probe or sounds they are all more or less familiar as adapted to canals and passages other than the lachrymal passages. The passing of sound or probe for the cure of chronic suppurative dacryocystitis, even if the strictures are overcome and the passages made ever so patent, is seldom achieved. Indeed, the passing of every large probe and sound is scarcely a justifiable procedure from a purely anatomical standpoint; for these sounds usually pass into and through smaller caliber canals, which, in addition, are surrounded by unyielding structures. And it is often the case, probes larger in diameter than the canal itself, are even forced through, and resulting in injuries or fractures to the surrounding bones, crushing the lining mucous membrane, and the establishment of false passages, and even new strictures. You are all more or less familiar how staunch an advocate Dr. Theobald of Baltimore is for the passing of the large lachrymal probe for the cure of this condition. I am sorry to state that many who have followed his teachings have had to regret the employment of the very large-sized probes.

The only valid objection that I can see to the operation is the more or less epiphora which is liable to remain. However, this can be readily corrected by the removal of the palpebral portion of the lachrymal gland. This gland is easy of access and is no harder to remove than the lachrymal sac itself. If this gland is removed, then the absolute cure of the condition is secured. As the lachrymal passage and the tear gland are correlated functionating organs, the destruction of one will materially inhibit the other by reflex circuits. In addition to the points mentioned by the doctor in the performance of this operation, I think it not only obligatory to destroy both puncta, but am a firm believer in the closing of each canaliculus. This is readily accomplished by slitting them in the usual manner and excising the lining mucous membrane and uniting the surfaces by one or two sutures. It is also essential, as the doctor states, to completely remove every vestige of the lachrymal sac and to obliterate either the nasal canal, or at least its upper extremity. This can be thoroughly accomplished by either the cautery or curette.

Dr. Snyderacker is certainly to be complimented for the results he has achieved in the cases presented. I am very glad he brought up the subject, because it seems to me to be the only rational procedure to offer an immediate and a lasting cure for a chronic suppurative sac. In fact, the passing of a probe into the lachrymal passages means the passing of the probe for nearly all times. I am a hearty indorser of the operation, and resort to the passing of the probe for the cure of chronic dacryocystoptosis only when not permitted to have my way as to an operation.

#### A CASE OF RUPTURED ACHILLES TENDON.

WILLIAM FULLER, M.D.

CHICAGO.

This patient met with an accident in which he ruptured the tendo achilles in the left leg. He is about 40 years of age, has always been well, and there is nothing in his history that might have any bearing on the injury received by him.

On Aug. 1, 1906, he was walking up an incline and when he was just in the act of lifting his heel from the ground was kicked just above the heel by his little boy. He was immediately seized with pain, and was able to walk with the greatest difficulty. Considerable swelling occurred and he finally became so lame that he sought the advice of his family physician, Dr. Arbuckle. The parts were very tender, and the swelling was so marked that a diagnosis could not at that time be made. The leg was treated with hot fomentations, and with the disappearance of the swelling a few days later the diagnosis was easily made, when I was asked to see the case. The patient at this time, August 29, was still very lame, unable to put the foot to the floor, and the heel could not be brought down without producing much pain. The ends of the tendon could be plainly felt and were about three inches apart.

An operation, for the purpose of bringing the ends of the tendon together, was advised and performed the following day. A curved incision was made at the side of the tendon forming a flap, which was turned to one side, exposing the widely separated tendon ends. The upper end was the one which, of course, by retracting to a great degree, caused the wide gap between the ends, and no position in which we placed the extremity seemed to offer much help in bringing the upper end of the tendon down. The foot was placed forcibly in the equinus position, the leg was flexed on the thigh and manipulation of the gastrocnemius muscle failed to accomplish the object desired. It was, moreover, seen that sutures as ordinarily placed, would be immediately released by pulling out of the tendon, as the upper end was very friable. A heavy round needle threaded with No. 4 catgut was passed through the upper tendon about one inch from its free end and one-eighth inch from its lateral border; the suture, thus introduced, was securely tied over this considerable segment of tendon, and one end of the suture cut away. A second suture of the same size was introduced on the other lateral border of the same end, and tied and one end cut off as in the first instance. The lower end of the tendon was treated in the same manner by similar

sutures, making four heavy ligatures firmly fixed to the severed tendon ends; then the efforts, first made to approximate the divided ends of the tendon, were repeated, and at the same time traction was made on the heavy catgut ligatures, which enabled us to finally bring the ends of the tendon together, where they were securely fixed by tying the ligatures just described, the ends of which were then cut away. Three or four very fine catgut sutures were then used to more accurately unite the free ends of the tendon, the connective tissue was closed over the catgut knots with a few more small sutures, and the wound was closed without drainage.

The foot was left in the extreme equinus position, a dry dressing applied, and over this a plaster-of-Paris cast was placed. The cast and the dressing were removed on the fourteenth day, showing a wound healed perfectly, and the tendon could be felt running under the skin just as it appeared after the operation. At the end of the third week massage and passive motion were begun, and almost daily improvement was noticed till the end of the tenth or twelfth week, when he was again at his work with the return of function and strength equal to that in the uninjured leg.

I desire to emphasize the necessity and importance of uniting tendons by surgical operations, especially important tendons like the Achilles tendons. The argument advanced by some that spontaneous healing will occur and that the future usefulness of the cases is just as good in unoperated as in operated cases, will not be accepted by all surgeons. We might add that broken bones will frequently unite without effort to reduce them, or appliance to fix them, the result thus obtained causing but slight loss of usefulness to the patient; but I am sure that results following such treatment will in no way compare with the results to be had by perfectly reducing the fracture, and so securing it till union takes place. The same thing may be said of divided tendons, as the reparative process here is similar to that in fractured bones. The argument that some advance regarding the perfect healing of tendons after tenotomies, should not be considered, because the tenotomy is done with a sharp instrument, doing no damage to surrounding structures, no hemorrhage occurs, and the ends of the tendon are not separated any further than is barely necessary to accomplish the object for which the operation was done. The wound is dressed, the extremity is as a rule bandaged, thus limiting muscular action, which is all, excepting the direct approximation of the tendon ends, that we aim at in operating for a tendon severed by injury.

If we will bear in mind the fact that tendons are made up of a special type of connective tissue, have a special structure, as well as a special function, the reason for restoring the continuity of a severed tendon by something other than purely scar tissue, should appeal to any one and to everyone. The structure of tendons is too well known to do more than mention briefly the importance of so replacing the separated ends that the latter may become united by proliferation from the peritendineum and from the numerous septa which spring from this layer of areolar tissue, and which pass in various directions into and through the tendon proper. If the new material which eventually unites the tendon is a product of the tissues just mentioned, restoration of continuity of the tendon with perfect function and structure should be expected. On the other hand, if the ends of a divided tendon are left widely separated, the surrounding tissues lacerated and injured, as they often are, it is plain that a restoration of the tendon will not take place; it is true that the gap will fill up, but it will be from the proliferation of subcutaneous tissue, which is not a specialized tissue; it is nothing more than ordinary scar tissue, a mere plug in other words, to each end of which the tendon ends are attached. The functional result thus obtained may be fair, and it may result in but slight loss of usefulness of the limb, as other muscles and tendons may develop at the expense of the crippled one; but that such results in cases so treated ever equal the ideal results obtained in cases treated as the one exhibited to-night would be hard to believe.



## DISCUSSION ON DR. FULLER'S PAPER.

Dr. E. W. Ryerson:—The indication for operation in this case was quite plain. With a separation of two and a half to three inches in an adult it is wise to perform a suture, because, provided union occurred, as it would have done without operation, the gastrocnemius and soleus would have been lifted up by the separation and these calf muscles would have appeared on the leg a couple of inches above where they ought to be. While that would not interfere with function it would weaken the strength, theoretically. Practically, we know it does not because we do hundreds of cutting of the tendo Achillis in a year for club foot, for flat foot, for spasticity and spastic paraplegia, and we never see incomplete union, and until I read Waterman's article last fall I did not know of such a thing as failure of the Achilles to unite. Waterman reports three cases in which they failed to unite. He reports that the tendon in infantile paralysis is degenerated in some cases because of the blood supply and this condition of the tendon prevented union. The only direct indication for such an operation would be to pull down the tendon to prevent raising of the calf. In other cases I have known the lower end of the tendon to be avulsed so there was a big gap left and yet union occurred. Except for the desirability of preserving the contour of the leg the doctor would have gotten a functional result without suturing, but the operation was well performed in this case. If the leg is flexed at the knee and the foot is in a position of marked equinus, it is easy to bring down a tendon to cover a separation of two inches. A month ago I cut a tendo Achillis for flat foot, the patient came back in two weeks and I took off the cast and could hardly, by feeling, tell the place where I had cut the tendon. It unites so perfectly, and the functional results are so perfect, that the interposed connective tissue of whatever type it may be is as good as the tendon.

Dr. William Fuller (closing the discussion):—I have nothing further to say except to refer to the point made by Dr. Ryerson about flexing the knee in operations on cases like these. It serves a good purpose, no doubt, in cases that are recent ones, but was of no help whatever in my case; the tendon ends could be brought no nearer together when the knee was flexed than when it was extended. The ends of the tendon were so widely separated and so difficult to approximate, that it more nearly resembled a tendon from which a piece had been removed than a tendon which had been severed. By forcibly placing the foot in the extreme equinus position, and thus holding it, while making continuous traction on the sutures placed in the sides of the tendon, we were able to secure them in their proper relation to each other.

## REPORT OF A CASE OF RUPTURE OF THE UTERUS DURING PREGNANCY THROUGH A CESAREAN CICATRIX.

CHARLES E. PADDOCK, M.D.

CHICAGO.

The specimen which I present was recently removed from a patient upon whom I had previously performed the Cesarean operation. This uterus shows a complete rupture through the old scar. Whether it extended beyond this scar or not I am unable to say. The history briefly is this:

Mrs. W., aged 36, had had four confinements and was in her fifth pregnancy when I saw her in 1905. She gave a history of protracted labors which resulted in three stillbirths and one living child, which died in a few weeks from injuries received at birth. All of the children were said to have been large. The pelvis was generally contracted, the measurements being anterior superior spines, 22 5/10 c.m.; intercrystal, 24 5/10; external conjugata, 18 c.m.; conjugata vera, 9 1/2 c.m. The question in this case of inducing premature labor was considered, but finally decided to carry the patient to term and then perform a Cesarean operation. A time was selected corresponding with the fortieth week of pregnancy, and the operation performed before the onset of labor. The conservative Snger was done and the incision closed by three layers of catgut sutures. The child, a female, 8 1/2 pounds, was normal in every way and lived for eighteen

months, finally dying of diphtheria. About five months ago the patient came to me, pregnant for the sixth time, and in the fourth month, and I again advised her to carry the case to term and to submit to another operation.

April 19, 1907, at 11 p. m., she was seized with severe abdominal pains, accompanied by an attack of vomiting. The abdomen soon became very tense and extremely tender to pressure. A physician was called and the usual attempt to move the bowels by drugs and high enemata met with negative results. Some opiates had also been given during the night to relieve the pain. The following day at 4 p. m. I saw the case for the first time. A diagnosis of the condition other than a conjecture was impossible. The intense distension of the abdomen rendered it impossible to outline the fetus, and the extreme tenderness made percussion and palpitation out of the question. Fetal heart tones at this time were not heard. Her general condition was good, pulse 90, and the temperature 100. Respiratory movements labored. The patient was removed from her home in the suburb to a hospital some ten miles distant, where she was seen by Drs. Besley and Kanavel. Twenty-four hours after the rupture the abdomen was opened. A considerable amount of dark fluid blood was found, together with many large clots. The fetus, together with the placenta, membranes intact, and liquor amnion were lying in the abdominal cavity. The uterus was firmly contracted and all bleeding had ceased. The child weighed  $9\frac{1}{2}$  pounds and was normal in every way. Previous to the rupture, which undoubtedly occurred at the first onset of the pain the night before, the movements of the child had been quite pronounced. From this time, however, active fetal movements were not noticed by the mother.

The patient had noticed during the past three or four weeks a very rapid growth of the pregnancy, and from the amount of liquor amnion which was found the case might be considered as a hydrannios. The uterus was removed by supravaginal amputation. It is now about two weeks since the operation and the patient has had a normal puerperium.

In looking over the literature connected with this subject, I find reports of several similar cases. Since Sanger revolutionized the operation of Cesarean section Prussmann (*Zeitsch. f. Geb. u. Gyn.*, Band lv) has found seven cases reported in the literature, besides the one which he reports, and Schenek (*Centralb. f. Gyn.*, 32, 1905) reports four cases of rupture through the transverse or Fritsch incision. Undoubtedly careful search of the literature will reveal more of these cases. In the reports the writers seem to lay great stress upon the fact of the difficulty of diagnosing a rupture of this kind.

The question may be asked: Why was not this woman put in a condition at the first operation which would make another conception impossible? And second, why was not pregnancy interrupted soon after the viability of the child? To the first question, I might state that I intend to consider this subject at a subsequent meeting, and will select from the literature all the cases which can be found. As to the interruption of the pregnancy, after the child is viable there is great danger, not only of rupturing the uterus, but of losing the child because of its prematurity. I have advocated that one of the indications for a Cesarean section was the fact that the patient had had a previous Cesarean operation; that to bring on labor at any time was dangerous because of the possibility of the rupture of the uterus. In Prussman's case he found that decidua tissue had invaded the musculature about the incision and even extended to the serosa.

## BRANCHIOGENIC CARCINOMA OF THE NECK.

WITH REPORT OF A SUPPOSED CASE.

C. O. YOUNG, M.D.

CHICAGO.

Branchiogenic cancer of the neck possesses a deep scientific as well as a practical interest. Primary cancer in this region is rare, until recently only 48 cases having been reported in the literature. This is not to be wondered at when we consider that their occurrence requires that the patient shall have been subject

to two distinct pathological processes in the same region at two widely separate periods of his existence. In the first place, some parts of the branchial clefts, which occupy the sides of the neck in early embryonic life and resemble the gills in fishes, must fail to obliterate, leaving epithelial structures from the hypopharyngeal or epiblast deeply buried in the deep structures of the neck. In the second place, these epithelial cells having laid dormant for decades, must from some unknown cause set up an abnormal activity or proliferation, causing the formation of these epithelial growths in the neck.

Aside from the morphological interest these tumors possess, they interest the surgeon in a practical way, since they early involve the deep vessels and nerves of the neck, and their successful removal requires an early diagnosis, followed by prompt and courageous operating.

Branchiogenic carcinoma of the neck was first described by Volkman in 1882, who reported three cases of tumor of the neck in men between 40 and 50. The microscopical examination of these tumors showed them to consist of large epithelial cells, with a structure resembling epithelioma of the skin. Nowhere else was a primary carcinoma discoverable. Volkman therefore concluded that these primary cancers of the neck must arise from remains of the branchial clefts. The year after Volkman called attention to these tumors Guttman, in his inaugural thesis in Berlin, discusses branchiogenic carcinoma of the neck and reports one case.

In 1889 Bruns and H. Richard reported two cases. In the same year Freiburg Jodunsky Amunon report three cases. In 1892 Gussenbauer reported eight cases. In 1894 Eigenbrodt reported one case, with no return two years after removal. In 1897 M.M. Berger Plauth reported one case and called attention to the possible origin of these primary cancers in the neck from misplaced portions of the thyroid gland. In 1898 de Montpelier reported three cases and von Bergmann one case. In 1899 Perez reported six cases and gave their histogenesis. In 1900 Viotor Veau reported six more cases and summarized the cases up to that time, in all forty-eight cases, with: 31 extirpations, 5 followed by immediate death, 14 with severe hemorrhages, 16 return of the growth within one year, 1 remained cured over one year, 1 remained cured over two years. The ages of the patients were: From 20 to 30 years, 2 cases; 30 to 40 years, 2 cases; 40 to 50 years, 12 cases; 50 to 60 years, 11 cases; 70 to 80 years, 2 cases. Forty-seven cases occurred in men and one in women.

The diagnosis of branchiogenic carcinoma of the neck must be made by exclusion. Meeting with a tumor in the upper triangle of the neck, which lies under the skin platysma and superficial layer of the deep cervical fascia, and is adherent to the deep cervical vessels of the neck, and which possesses all the earmarks of a cancer, then the question arises, have we not to deal with a secondary carcinoma of the lymphatic glands of the neck, and only after having carefully excluded the presence of a primary cancer of the skin, mucous membrane, pharynx, esophagus and larynx, can we make a diagnosis of branchiogenic carcinoma in the sense in which Volkman first described these tumors?

The treatment of branchiogenic carcinoma of the neck consists in early excision. This is even more urgently demanded in the treatment of cancer of the neck than in case of cancer elsewhere in the body, since cancer in this region early involves the deep vessels and nerves of the neck, and while their resection is not necessarily attended with fatal results, yet it very materially increases the danger of the operation.

Since, however, these patients usually come to the surgeon two to six months after they have noticed the onset of the tumor, it is then often too late for intervention, and the patients die within a few weeks from ulceration into the vessels, followed by hemorrhages or thrombosis of the vessels, or interference with respiration or secondary deposits in other organs.

To prevent the occurrence of these tumors, congenital fistulae and cysts of the neck should be removed whenever met with, since these serve as nest eggs for branchiogenic carcinoma.

## HISTORY.

The patient, a man aged 70 years, a cabinet maker by occupation, born in Germany, came under my care at the Washington Park Hospital Jan. 26, 1907. He comes from a wealthy family and except for malaria as a child he never was sick, and denies all venereal infections. About the middle of September, 1906, the patient noticed a tumor on the right side of his neck, about the size of an English walnut. On Oct. 1 he consulted a local physician, who gave him a salve to apply locally. The tumor has gradually grown larger. For the past three weeks the patient had felt a sensation of beating and hammering on the right side of the head, extending into the occipital region, and had also experienced some difficulty in swallowing.

## Physical examination:

Patient is a fairly well-nourished, muscular man; examination of heart and lungs reveals nothing abnormal. A solid tumor the size of a hen's egg was found in the upper anterior triangle of the neck on the right side. It lay deep in the neck, over it the skin and platysma were readily moved, the sternocleidomastoid not so readily movable, and it seemed to be attached to the deep vessels in the neck. I wish to emphasize that except for two glands in the right axilla the size of navy beans no tumor was to be found anywhere upon the skin, mucous membranes, pharynx, larynx, tongue or esophagus, though sought for by myself and the laryngologist to the hospital, Dr. Hakanson. In view of these facts, I felt warranted in making a probable diagnosis of branchiogenic carcinoma of the neck. On Jan. 28, 1907, I extirpated the tumor. An incision was made along the anterior border of the sternocleidomastoid muscle, and crossing this a second incision was made, from the middle of the jaw to the acromion process and the flaps turned back. The internal jugular vein was found to be involved in the tumor mass and was resected for a distance of  $2\frac{1}{2}$  inches, the vagus was laid bare for a distance of 4 inches, but was not found to be involved in the growth.

The wound was closed without drainage and healed by first intention. Microscopical examination of the excised tumor was made in the pathological laboratory of the Chicago University, and Dr. H. G. Wells reported squamous cell carcinoma, with no hornifications, no epithelial pearls, a tendency to karyokinesis. Sections from the enlarged gland from the axilla showed no cancer.

The patient made an uneventful recovery and left the hospital eighteen days after the operation. He returned once a week for x-ray treatment and on May 1st the hospital laryngologist, Dr. Hakanson, discovered a growth the size of a mulberry on the right side of the larynx, which had all the appearance of cancer. The patient had lately had moderate hemorrhages from the throat.

This case emphasized the difficulty of making a correct diagnosis of branchiogenic carcinoma of the neck. Had this case been reported soon after operation or dropped out of observation and the laryngeal carcinoma therefore remained undiscovered, or had the patient died shortly after operation and no autopsy been held, the case would certainly have gone down as a case of branchiogenic carcinoma.

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### CYSTIC ATHEROMA OF NECK.

This patient is a school girl, aged 12 years, whose father, mother, and older sister are living and well. She had measles at 3 and whooping cough at 5 years of age. When the patient was 4 years old her mother noticed a swelling on the right side of the neck, for which patient went to a dispensary, where it was opened, and the wound packed with gauze and dressed every day for three weeks, when it remained healed for six years. Two years ago the swelling reappeared and was opened by a local physician. It reappeared again in a few days and was again opened by the doctor. This did not improve the condition, and a flax-seed poultice was ordered to be applied to the neck. The swelling now rapidly increased in size, and the patient later went to another physician, who opened it, letting out a small amount of a creamy fluid which looked like pus. The wound was dressed for two weeks, when it healed and remained so for one year. Last Christmas the tumor reappeared and ruptured of itself, and has continued to discharge ever since. Since last Christmas the patient has been treating with a local physician, who has been injecting various kinds of medicines into the swelling without benefit. The tumor has never caused any disturbance except for the discharge and a slight discomfort before each time it ruptured.

When I first saw the patient, April 27, 1907, she presented a sinus in the upper anterior triangle of the neck, which led down in the direction of the carotid. There was no discharge at the time, but the patient stated that it would fill up and discharge about every third or fourth day. In the neighborhood of the sinus there were several small scars where the tumor had been opened at various times. The tissues in that location were indurated, and deep in the neck a small tumor could be felt. On April 29 the patient was given a general anesthetic. The sinus was injected with methylene blue. An incision was made along the anterior border of the sternocleidomastoid muscle, and the tract of the sinus carefully followed down to a tumor sac about the size of a pigeon's egg, which was adherent to the sheath of the carotid and the digastric muscle. It contained a material much resembling the contents of a sebaceous cyst. On account of the history of the case, the location, relation, and contents of the tumor, I considered it an atheromatous cyst, but the microscopical examination proved it to be tubercular.

This case shows how persistent the discharge from a tubercular gland of the neck may be, when treated by simply poulticing and incision, and illustrates the importance of operating more radically.

### CANCER OF THE STOMACH.

Mrs. A., aged 64 years, came under my care at the Washington Park Hospital, April 16, 1907. She complained of vomiting everything she ate. This trouble had lasted for seven months; at first she would have to vomit every third or fourth day, but of late, this vomiting had become more frequent, until now she could retain no food. The vomitus has never appeared dark or bloody, but has at times contained remains of food eaten several days before. She claims to come from a healthy family, and to have never been sick before onset of present trouble. She is the mother of seven children and has never had any miscarriages. Except for drinking eight to ten cups of coffee daily, her habits have always been good. She complained of great weakness and thought she had lost twenty-five pounds in weight. The physical examination showed that she must have lost greatly in weight. Her adipose tissue had practically all disappeared. She was cachectic. Examination of the heart and lungs showed nothing abnormal. The patellar and pupillary reflexes were normal. Over the flaccid abdomen the skin could easily be lifted up in folds. A hard tumor about the size of a hen's egg was to be felt in the epigastrium; it descended with inspiration and could

be readily fixed by the palpating fingers during expiration. Upon inflating the stomach by giving the patient a dram each of bicarbonate of soda and tartaric acid in water, the tumor was seen to belong to the pyloric zone and to be freely movable. The greater curvature of the stomach extended three fingers' breadth below the navel. Auscultation with the stethoscope over the pylorus elicited a high pitched blowing sound as the gas passed through the constricted pylorus into the duodenum. In the right axilla several hard, freely movable glands the size of a butter bean were to be felt. There were no supraclavicular or other glands to be felt. One of the glands from the axilla was excised under local anesthesia and sent to the pathological laboratory of the University of Chicago for microscopical examination. Dr. Wells reported that the gland was tubercular.

A test breakfast showed absence of free hydrochloric acid and presence of lactic acid; no *Boas bacilli* nor *Saracini* were found. In view of these findings a laparotomy was made with the view of extirpating the tumor if possible, or else to perform a gastrojejunostomy to relieve the obstruction.

On April 21, 1907, the patient was given, at 5:30 a. m., hypodermically,  $\frac{1}{8}$  grain of morphin,  $\frac{1}{200}$  grain of hyosein,  $\frac{1}{33}$  grain of eactine; this was repeated at 8:30 a. m., and 9:00 a. m., or fifteen minutes before the operation, a double dose of the same was given and chloroform was administered while making the incision through the skin and peritoneum. No more anesthetic was given during the operation, which lasted one hour and twenty minutes, until the closure of the abdomen was begun, when again a few whiffs of chloroform were administered. The cancer was found to be operable, and was removed with approximately five inches of the pyloric portion of the stomach. The Billroth No. 2 operation was performed and the technic followed was that laid down by the Mayo brothers. It was with considerable difficulty that injury to the middle colic artery was avoided, as it was drawn into a mass of adhesions near the tumor, and could only be freed by careful dissection. On the second day after the operation the patient sat up in bed and took liquid nourishment, and was out of bed on the third day. The wound healed by first intention. The cancer had so occluded the pylorus that when the excised portion of stomach was held under the hydrant the water would only pass through the pyloric opening in drops. Microscopical examination of the excised tumor showed cancer.

#### DISCUSSION OF DR. YOUNG'S CASES.

Dr. William Fuller:—I would like to ask Dr. Young what it was that led the laryngologist to examine the patient's throat, and how long after the operation it was that the examination was made. We know that laryngeal growths are, as a rule, detected early, owing to the irritation and annoyance they occasion; and in view of this fact, and also the fact that no throat lesion was discovered previous to the operation, is it not possible that the laryngeal growth was a secondary one, and that the neck tumor, after all, was a branchiogenic cancer? The only primary laryngeal carcinoma that has come under my observation, gave rise very early to throat symptoms of the most distressing sort long before secondary occurrence was noticed in the neck. The reverse of this picture may be true as Dr. Young is inclined to believe regarding the case which he presented to-night, but it seems that an element of doubt may honestly be here entertained, and that the carcinoma could have had its origin in the epithelium of an unobliterated branchial cleft.

In studying malignant epithelial growths in the neck, having their origin in epithelium other than that of the skin or the larynx and pharynx, are not always branchiogenous, because several instances of cancer originating in outlying accessory thyroid glands have been reported, and are of course possible. Inasmuch, too, as the normal structure of the earotid gland is not known, and that it is considered by some to have its origin in epithelium, a carcinoma of this structure may be possible.

Dr. C. O. Young (closing the discussion):—The occurrence of hemorrhage from the throat is what led me to refer him to the laryngologist. I had been very hopeful of being able to report this case as one of branchiogenic carcinoma, since

this would have been the first case, so far as I have been able to learn from the literature, reported in this country. I believe, however, that this is nothing but a secondary carcinoma of the lymphatic glands of the neck, and that the primary carcinoma is in the larynx.

Dr. Julius Grinker presented a case of Incipient Syringomyelia and a case of Progressive Muscular Atrophy. The reports will be published in full under original articles.

#### DISCUSSION OF DR. GRINKER'S CASES.

Dr. Adolph Gehrman:—I would like to ask if Dr. Grinker has had any experience with the *x*-rays in syringomyelia. I have seen a case described that was treated by the *x*-ray with good results.

Dr. Liston H. Montgomery:—Is there any history of specific trouble in the second case?

Dr. Grinker (closing the discussion):—As regards the *x*-ray, I have had no experience with it in syringomyelia. We do not see very many cases of syringomyelia; I have not seen more than half a dozen in two or three years. We usually always see them in an advanced stage. This is probably a case in which the *x*-ray might be tested. I am thankful to Dr. Gehrman for the suggestion. I shall recommend it to the patient. As regards a specific history, I have neither been able to get a history, nor have I found any evidence of it in the second case. Lues is not a cause of progressive spinal muscular atrophy. It may exist, but is only a coincident affection.

#### CHICAGO OPHTHALMOLOGICAL SOCIETY.

*Meeting of March 11, 1907.*

F. C. HOTZ, M.D., President, in the Chair.

#### XANTHOMA MULTIPLEX WITH CORNEAL INVOLVEMENT.

Dr. F. A. Phillips presented a boy of 18 with a large, yellowish, broadly sessile, slightly vascular tumor seated upon the upper third of the corneo-scleral limbus of the right eye. A similar growth affecting the fellow eye had disappeared and then reappeared. Typical lesions of xanthoma multiplex of some four years duration were scattered over the body. Nine months before the larynx had been attacked and a tracheotomy performed to relieve the obstruction. Although no part of the tumor of the eye had been removed for microscopical study Dr. Phillips considered these lesions to be identical with those of the skin.

Dr. E. V. L. Brown suggested that the fatty nature of these tumors might make it possible to stain them black in situ by stripping back the conjunctiva and applying Fleming's solution.

#### A CASE OF COMPLETE ALBINISM.

Dr. Willis O. Nance exhibited a case of complete albinism in a girl of 5 years, in whose family history, dating back to great grandparents on both paternal and maternal sides, no trace of a similar condition could be determined. The patient, born in Chicago, is one of five children, two of whom are dead; the parents and the two remaining children were exhibited before the society. They are of Irish descent and all vigorous, both physically and mentally. There is no history of intermarriage, admixture of negro blood, syphilis, or other dyscrasia. The child's eyes are perfectly normal except for the complete absence of pigment. Nystagmus is present. The refraction is hypermetropic to the extent of 4 D. Dr. Nance agrees with Gould that the albinotic eye is not in any sense a diseased one, and that heredity or consanguinity figure little in its causation.

Dr. H. B. Young, Burlington, has seen three cases of albinism, one a child of 5, the second a young lady of 18, and the third a woman about 45. As in Dr. Nance's case the eyes were normal throughout except for the absence of pigment. When the girl of 5 grew to young womanhood the albinism was much less noticeable. In response to a question by Dr. Guilford, Dr. Nance said that the hearing of his patient was apparently normal, although a careful examination was not made.

## QUININ AMBLYOPIA.

Dr. H. W. Woodruff exhibited a patient who had been given 195 grains of quinin in four days some thirteen months ago. Total blindness of sudden onset lasted three or four days, then vision returned and in ten days he could see to get around. During the past months vision has continued to improve slightly and is now 20/60 and 20/40 respectively, although there is a marked atrophy of each nerve-head and typical concentric narrowing of the fields.

E. V. L. BROWN, Secretary.

*Meeting, April 8, 1907.*

HENRY GRADLE, M.D. Presiding.

## A CASE OF SUPERNUMERARY CANALICULUS.

Dr. Willis O. Nance reported a case of supernumerary canaliculus in a man of thirty who complained of bilateral epiphora. There was present a mild chronic catarrhal conjunctivitis, but no history of dacryocystitis, or probing or of other treatment. Two distinct puncta were observed on the left lower eyelid, one in the normal position, the other on the direct marginal line about 4 mm. nearer the inner canthus. Probing and syringing demonstrated two separate and distinct canaliculi which led to the lachrymal sac or to a common duct very near the sac. The epiphora disappeared completely under appropriate treatment. Dr. Nance found but twenty-two cases of supernumerary canaliculi recorded in the literature. The presence of the extra canaliculus has been said by some to be due to the development of two epithelial inshoots, instead of one, from the primary duct.

## SHRUNKEN SAC AFTER ENUCLEATION.

Dr. Henry Gradle exhibited a man who had been unable to wear an artificial eye after enucleation of an eye wounded by a pistol shot years ago. The cul-de-sac was enlarged and Thiersch flaps engrafted; these did well, but shrunk considerably. He then put in a Krause flap without stitches and packed the orbit with pellets of gauze. This procedure gave satisfactory results, although there was too much narrowness around the internal canthus which he remedied by Wolff grafts, and the patient now wears an artificial eye with much comfort.

## TRAUMATIC XEROSIS OF THE CORNEA.

Dr. Henry Gradle reported a case in a man in perfect health, about 38 years old, who was struck in the left eye by the elbow of a child, 4 weeks ago. The severe pain had been relieved by hot fomentations. Ten days later Dr Gradle found a sharply circumscribed punched out defect on the corneal epithelium over which the smeared secretion of the Meibomian glands collected as an oily scum; boracic acid solution would not moisten the abraded area in the least. No matter what treatment was employed, the effect was practically *nil*. Atropin was continued, dionin was used, and nitrate of silver was applied to the hypertrophied ocular conjunctiva with but temporary benefit. Salicylate of soda and subconjunctival injections were ineffectual. Two days ago, Dr. Gradle scraped the abrasion, which gave the patient more comfort than he had before. The material removed showed the xerosis bacilli, epithelial cells, and some cells with granules that stained with methylene blue; it could not be determined whether or not these were plasma cells. The nasal corner of the abrasion is healing, but otherwise the lesion is unchanged. He curetted again this morning, and where he passed beyond the edge of the abrasion healing has taken place five hours after the operation. The floor of the abrasion looks the same as before.

## MOTAIS' OPERATION.

Dr. Oscar Dodd exhibited a patient and photographs taken before and after a comparatively satisfactory Motais' operation for aggravated ptosis.



## CORNEAL TUBERCULOSIS SUCCESSFULLY TREATED BY TUBERCULIN OPSONIC INDEX CONTROL.

Dr. Osear Dodd exhibited this patient, a girl of 14. Six months ago there had appeared a marked episcleral swelling bordering the nasal half of the cornea and infiltration and vascularization of the adjacent cornea. The condition was diagnosed as phlyctenular conjunctivitis but got worse under the usual treatment; the conjunctival swelling then resolved under iodids and mercurials but the corneal infiltration had increased to pinhead sized stroma nodules of yellowish white color. The opsonic index for the tubercle bacillus was examined, and found to be 8.91, 8.69 and 9.2 on three occasions respectively in comparison with a normal 10; a diagnostic injection of 5 mg. of old tuberculin gave a typical general and very marked local reaction lasting several days and evidenced by the appearance of new and larger nodes and the obscuration of the smaller ones by increased infiltration. Examination of the lungs was negative, but during the height of the reaction from the tuberculin there were marked râles in the upper right apex, and marked inspiratory prolongation.

A month later (Feb. 8, 1907) the opsonic index was 10.1; injection of  $\frac{1}{2}$  c.c. of Koch's new tuberculin produced some local but no general reaction. February 11th, the opsonic index was 9.3, and on the 13th, 11. On February 14th, she was given two-thirds c.c. of new tuberculin, and on the 16th, the opsonic index was 8.4. There was considerable local reaction. On February 18th, the index was 12.2. She was given  $\frac{1}{2}$  c.c. of tuberculin, and on the 20th the index was 10.1; 11.6 on the 22d. Another injection was given on the 22d, and one on the 25th, when the index went up to 15. Since that time it has varied from 12 to 15. The last injection was given March 22d. The corneal infiltration has disappeared, the spots being almost invisible. The general health of the patient has improved very much. The eye is quiet, and the vision 6/6.

## CONJUNCTIVAL TUBERCULOSIS.

Dr. Osear Dodd exhibited a case in which the conjunctival condition closely resembled trachoma except in that the inflammation of the upper palpebral conjunctiva extended forward in front of the tarsus across the sulcus subtarsalis and to the very edge of the line formed by ducts of the Meibomian glands.

## AN ORBITAL TUMOR OF TEN YEARS' STANDING. ENDOTHELIOMA.

## (Kroenlein Operation)

Dr. C. A. Leenheer. (Entrance Thesis.) Dr. Leenheer presented this patient, a woman of 34, with photographs taken at various periods during past ten years, before and after operation, along with microscopic specimens and three photomicrographs.

The patient gives a history of protrusion of the eye noted ten years ago, at which time she refused to have the eye removed; the protrusion of the eye increased during subsequent three years, at which time the same advice was again given and again refused. She came in September, 1904, at which time was found the following conditions:

Left eye blind and protruding  $\frac{3}{4}$  of an inch; bulb well covered by the lids; divergent strabismus; vessels of the eye and lid engorged; the disc is best seen by a +4. There is no palpable tumor in the orbit and a skiagraph shows no overgrowth of the bony structures. Transillumination of the frontal sinuses is negative. There is no history of syphilis and anti-syphilitic treatment proved of no avail. March 15, 1905 a Kroenlein operation was performed by Dr. Schroeder. A tumor was found completely filling the muscle crater behind the bulb; the same had to be removed piecemeal, healing followed. At the present time there is evidence of a return of the tumor.

Anatomical examination of the specimens by Prof. Zeit showed numerous firm, irregular tumor masses; one piece had taken the shape of the posterior portion of the muscle funnel and as such was studied in toto. The combined

weight of the tumor was 8.53 grams. Microscopic study showed lymph-angio-endothelioma-perivascularis.

Dr Leenheer then gave an extended review of the Kroenlein operation and the literature of endothelioma, and closed with the following:

#### CONCLUSION.

1. The pathologists differ very much as to classification of endotheliomata, but agree that endothelioma are derived from the endothelial lymph spaces and blood vessels, and that endotheliomata should be classed under sarcomas. They are of slow growth and do not form metastases.

2. The case reported in this article upholds this opinion.

3. In most of the cases reported as endotheliomata in the literature, the authors do not go into the microscopical findings. If all the orbital growths were examined microscopically, more endotheliomata would be found.

### CONTUSIONS AND CONCUSSIONS OF THE CHEST.\*

EMANUEL FRIEND, M.D.

Instructor in Surgery, Rush Medical College, Attending Surgeon to the Michael Reese Hospital, Assistant Attending Surgeon to the Presbyterian Hospital.

CHICAGO.

We may properly divide the injuries of the thorax into two headings, namely, contusions and concussions, which should not be confounded with one another, as each frequently gives rise to a distinct train of symptoms. By contusions we mean those injuries to the chest, usually produced by blunt force, in which the skin and subcutaneous tissue is but slightly affected, but with severe injury to one or more of the thoracic organs. Concussion means that there are apparently no skin or subcutaneous or intrathoracic injuries, followed by a distinct symptom-complex.

The simplest form of contusion is that in which the blow, kick or violence has produced a slight ecchymosis of the skin, with at times a collection subcutaneously of extravasated blood, namely, a hematoma, which, when small, may be absorbed in a short time, and which at times is very extensive, and whose treatment is the simple application of ice, compression bandage, massage, although in tubercular individuals the same may form an abscess and give cause for incision and curettement. Occasionally incision is instituted in those which do not go into abscess formation.

Zinke, in the *Charite Annals* of 1884, reports two cases of extensive hematoma the size of a hot water bag, which extended from the lumbar region up over the scapular, lifting the skin from off the spinous processes of the vertebra, resulting in complete absorption. Leteneur has seen the subcutaneous rupture of the pectoralis major muscle. In many cases the cause is from a spent ball or large projectile, or being run over or being crushed by the bumpers of railroad cars, and falls from a considerable height.

The skin and external evidences of injury may be practically *nil*, while the injuries of the thoracic organs may be of the greatest magnitude. The symptoms of such are the symptoms of shock, dyspnea, cyanosis, coldness of the extremities, pallor and general collapse. Laurent described the case of a 16-year-old boy who was run over the chest by a wagon wheel, in whom there were no visible external signs of injury except slight ecchymosis. Patient was unconscious and cyanotic, with mainly abdominal breathing. He died two and a half hours after the injury. Postmortem revealed considerable rupture of both lungs and hemothorax.

Lonsdale found in consequence of a compression of the thorax a rupture of the trachea at the bifurcation, and Majorlin relates the case of a boy run over by a wagon wheel in which the postmortem revealed the left pleural cavity filled with blood and air. The pleura was intact, but the lung showed two ruptures. The right chest was intact. The third and fourth ribs on the left side were

\* Read before the Aux Plaines Medical Society.

fractured and the third on the right side, but only toward the skin surface, and not even through the periosteum, consequently the fractures could not have caused the rupture of the lung.

Robert McDonnell reported the case of a young man run over by a wagon wheel. The patient complained mostly of abdominal pains. There were no fractures of the ribs or vertebrae and no hemoptysis until shortly before death. The accompanying collapse soon disappeared. The left pleural cavity became tympanitic. The heart was displaced toward the right, and finally an extensive dulness manifested itself over the left chest, which, by aspiration, resulted in the withdrawal of 22½ ounces of blood. The patient died on the tenth day after the injury. The postmortem revealed a complete rupture of the left lung and the pleural cavity filled with blood and air. Marked depression of the diaphragm, and the heart dislocated toward the right.

The source of the blood is generally from the parenchyma of the lung or the bronchial vessels, when a rupture of the larger vessels is ruled out and is generally absorbed without marked reaction. Riedinger gives the following history of an interesting case: A man fell into a deep excavation and sustained fractures of several ribs and also an impacted fracture of the surgical neck of the humerus with a dislocation of the head of the bone, which was not replaced, although the patient was able to use the arm in consequence of a false joint being formed. The patient died many years later of an intercurrent trouble, and the postmortem revealed a rupture of the diaphragm, through which the greater part of the liver and several coils of small intestines presented themselves. The patient had not complained of pain or discomfort, which caused the condition to be entirely overlooked. Leichtenstern diagnosed a similar case; the patient died of overdistension of the stomach, and postmortem revealed the diagnosis correct. Such cases should be carefully examined. Butlin reported a case which had been caught between railroad bumpers and sustained a fracture of the seventh, eighth, ninth, tenth and eleventh ribs, and was aspirated for dislocation of the heart. Postmortem revealed the stomach, spleen and transverse colon in the pleural cavity. Similar cases have been reported by Bonilly, Seuft, Kuster, Stretter, Settegast and others. The specimen which I present to you this evening is one of traumatic diaphragmatic hernia taken from a boy 6 years old, who was run over by a beer wagon April 4, 1905, whose history reads as follows:

Male, aged 6, American; admitted to Michael Reese Hospital April 4, 1905.

*Diagnosis.*—Injury to chest and abdomen; rupture of the kidney.

*History.*—April 4, past history and family history negative.

Yesterday afternoon about 5 o'clock patient while running across the street in front of his home was run over by a rapidly moving beer wagon. Patient's father thinks that one wheel went over the abdomen, the other over both thighs. The boy was dazed, but not unconscious, and was carried to a nearby physician's office, later to his home. Last evening the boy complained of severe pain in the lower abdomen, pain gradually getting worse this morning. Patient has vomited several times since the accident. Vomitus consisted of the food ingested and did not contain any blood. The first urine voided last evening after the accident contained blood. This morning the boy was unable to urinate; a specimen obtained per catheter was very dark in color, but contained no blood. Embarrassed respiration developed this morning. Boy complains of no pain nor loss of function of the lower limbs.

*Physical Examination.*—Well-developed young male. Head negative; mouth contains some decayed teeth; a few of the upper set absent; neck negative.

*Chest.*—Heart can not be outlined. Sounds heard in the mitral area, but more distinctly below right nipple. Pulse rapid, small, low tension; apex impulse below the right nipple.

*Lungs.*—Breath sounds distant in left lung; roughened in right. Left lung tympanitic anteriorly; dull posteriorly. Line of dulness passes anteriorly in a curved line with convexity downward.

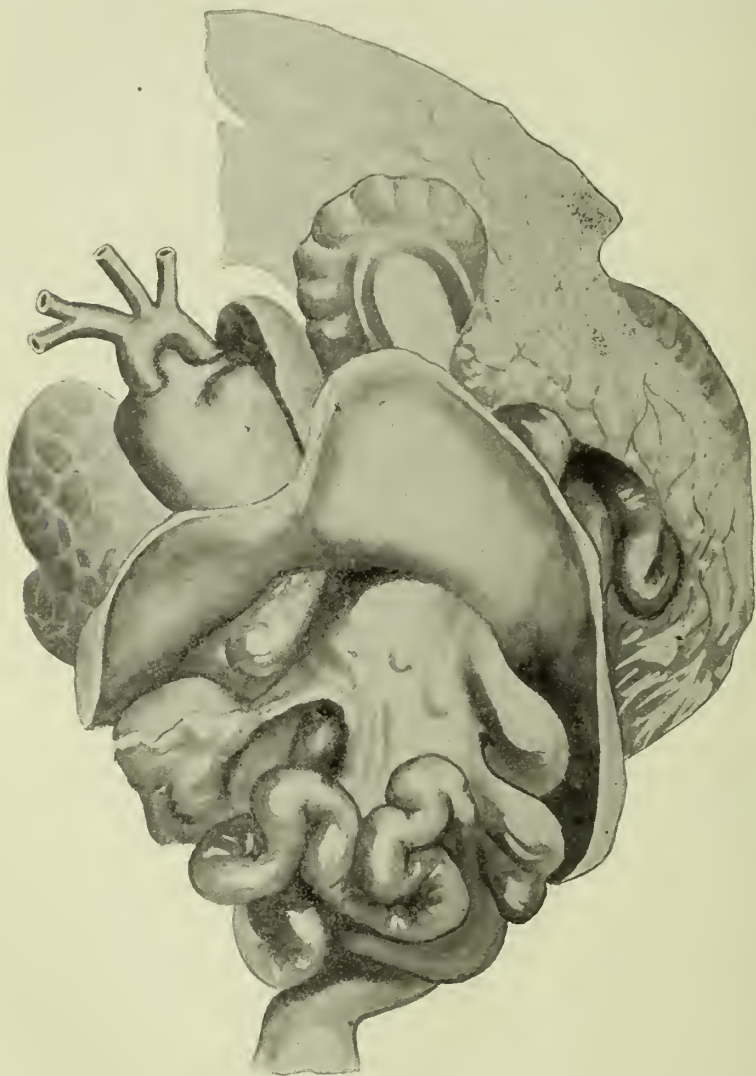
*Abdomen.*—Some ecchymosis in right lower abdomen.

*Extremities.*—Ecchymosis on inside of left thigh.

*Bony System.*—Negative; no fractures.

*Operation.*—Dr. L. L. McArthur.

After preparation, a median incision about 4 inches long was made reaching as high as the umbilicus. A subperitoneal hematoma was found reaching well up on the bladder from behind. A two-inch incision was made in the left flank by a muscle-splitting method reaching down to the peritoneum, a double drainage tube was inserted down to the bladder and stitched in. The peritoneal



cavity was washed out with normal salt solution. Incisions closed. Patient died April 6. Postmortem revealed the presence of a diaphragmatic hernia, as shown in the accompanying picture. The colon and loops of small intestine being found in left pleural cavity, pushed through a rent in the diaphragm. The displacement of the heart and lungs markedly to the right accounting for the peculiar physical findings.

An interesting fact is the occurrence of hernia of the lung in consequence of contusions without external wounds. In Wahl's case the second and third ribs



were fractured, and the hernia manifested itself only after some days in consequence of a severe attack of coughing. It was very painful and tender to pressure, and disappeared spontaneously. The orifice was the size of a quarter and could plainly be felt. Weis reported the case of a laborer with fractures of the third, fourth and fifth ribs, in consequence of which a hernia the size of the palm of the hand was apparent. Intercostal pains simulating neuralgia are occasionally seen after simple contusion. Never give a prognosis in such cases of contusion, even with slight or no external manifestations, until a thorough examination has been made some days after the swelling has disappeared.

The affections of the lungs and pleura, in consequence of contusion, might be classified as follows:

1. Contusions of the lungs and pleura. (a) Superficial and subpleural ecchymoses; (b) hemorrhagic infiltration of the lung tissue; (c) apoplexy of the lung.

2. Solution of continuity of the lungs and pleura. (a) Tearing and crushing of the lung, at times complicated with subpleural, interlobular emphysema; (b) tearing of the pleura, complicated with pneumothorax and hemothorax, occasionally with subcutaneous emphysema.

3. Inflammatory affections of the lungs and pleura, secondary affections. (a) Lobar pneumonia and pleuropneumonia; (b) pleuritis; (c) rarely gangrene lung.

The affections of the pericardium and heart might be classified as follows: (a) Subpericardial ecchymoses, hemopericardium, pericarditis sicca, pyo and pneumopericarditis; tearing of the pericardium. (b) Extensive hemorrhages in the heart muscle, myocarditis, rupture and gangrene of the heart. The mechanism of such injuries can be explained in the following way: Rupture of the lung and pleura may occur when at the moment of sudden impulse, to the chest, the glottis is closed and the lung distended to a considerable degree, especially when the bony chest wall is elastic. Bonilly has shown that a blow on the lung of a corpse does not as a rule produce a rupture, but mere flattening of the same, while by tying the contiguous bronchus a similar blow will produce a rupture of the lung tissue. In case of rupture of the heart there are generally underlying degenerative changes. The inflated lung does not protect the heart and chest organs from sudden blows, still it is very doubtful whether such protection is of great consequence. The esophagus may also be ruptured and the food enter the pleural cavity and infection of the mediastinum take place.

Many patients apparently improve from the start, but frequently after a few days, show the signs and symptoms of a long and tedious disease. For days there will be present bloody expectoration, severe pains, high fever, dyspnea, etc., and frequently die of secondary complications. Krönlein has noted a pleuritis, sicca, Kuster a serous pleuritis, which necessitated aspiration. Wahl has observed a pneumonia with stormy respiratory symptoms after contusion, and Billroth has observed pleuropneumonia. Litten has recently called our attention to the favorable prognosis of contusion pneumonia, although presenting all the symptoms of the idiopathic variety.

Other cases, again, withstand such injuries well and recover in a short time. Such cases have given rise to the supposition that contusions of the chest are of minor magnitude, but Pirogoff has correctly stated that such injuries are as severe as penetrating wounds of the chest. The prognosis depends on the extent of the injury, the constitution of the individual and the surroundings of the patient. Many patients have died due to unhygienic surroundings, who could otherwise have been saved. During the Civil War, of 17 cases without apparent external injury, 13 died within twelve hours.

Concussion of the thorax is probably analogous to concussion of the brain; its existence is denied by many authors, as was for many years concussion of the brain. It manifests itself after a severe blow on the chest, usually by blunt force, with symptoms of shock, such as irregular, short and rapid respirations, unconsciousness, great pallor, localized perspiration, rapid, thready, irregular pulse and death, without demonstrable gross pathologic changes, either without or within the thorax.

Riedinger and Meola have made original investigations upon the lower animals,

and Riedinger has come to the conclusion that the symptoms are due to lowering of the blood pressure in consequence of intrathoracic stimulation of the pneumogastric nerve and direct concussion of the heart, and to a less degree to defective circulation in the brain in consequence of the diminished blood pressure. Paralysis of the heart in diastole may result from violent concussion of the same. Hofman states that such symptoms of shock may be occasioned by blows on the thorax, causing concussion of the epigastric region and traumatic irritation of the splanchnic nerves. Meola's idea after experimentation was that in consequence of concussion of the thorax there took place an irritation of the vagus and paralysis of the sympathetic nerves, which produced an anemia in the medulla, and in this way caused a direct influence in slowing or stopping circulation and respiration. Nelaton reported the case of a patient, hauling a loaded wagon through the streets, by means of a strap across the chest, which broke and caused him to fall heavily upon the chest, with consequent, immediate death and absolutely no demonstrable, intrathoracic or abdominal lesion at postmortem. Meola reported the case of a diabetic who was struck by a stone on the chest and died immediately. Riedinger reports the case of a coachman who was struck by a wagon pole over the middle of the sternum. He fell unconscious, was pale and exhibited no signs of life, was carried to his bed; after a considerable time he gained consciousness. At the point of impact there was noticeable a slight ecchymosis. In deep inspiration patient had a slight sticking pain and slightly bloody sputum in the expectoration. Careful and repeated examinations revealed negative results. The patient attended to his regular duties after two days. The pain continued for some time, although did not hinder him from his work. This case, with the absence of all symptoms, except those of concussion, and with the rapid recovery, illustrates the difference from contusion.

*Diagnosis.*—The differential diagnosis between the two conditions is not always easy. In case the patient lives it may not be determined for some days. The diagnosis of concussion would be probable wherever we have no fracture of the ribs or sternum, no marked symptoms on percussion or auscultation, and where the progress of the affection is rapidly toward favorable termination. The diagnosis of contusion is more probable in these cases where there is more or less bloody expectoration, where a hemothorax or pneumothorax can be demonstrated or the general pallor exists for a long time, the respiratory murmurs change and dyspnea and fever occur.

*Prognosis.*—In concussion death is usually seldom in the mild cases. The patients recover without marked symptoms. In the severe cases the symptoms may persist for days and death occasionally may result instantaneously. In contusion with injury of the thoracic organs the prognosis is quite different. A great many die immediately, due to rupture of the heart or large blood vessels. Schuster reports 82 cases; 53, 64 2/10 per cent., died within three minutes; 24, 29 1/3 per cent., died immediately, while 29, 35 1/3 per cent., died some time after the injury. In spite of these figures many cases recover, when a blood extravasation is absorbed, an infection has run its course or a consequent pneumonia has terminated favorably.

*Treatment.*—The first indications in concussion is to supply the anemic brain with blood and restore the tone of the vagus. This is accomplished by putting the patient to bed, elevating the foot of the bed and when indicated artificial respiration is instituted, rubbing the body with alcohol and subcutaneous injections of ether or camphorated oil. If the patient is able to swallow, black coffee may be given internally; if not, per rectum.

In contusion, Stromeyer has strongly recommended venesection in severe cases. In hemothorax, with severe symptoms of compression, it is well to incise and empty the chest cavity, but only when these symptoms are alarming, as too early evacuation of an accumulation of blood, for instance, from a ruptured lung, is liable to cause a renewed hemorrhage, which may be fatal. Ice bags locally applied and morphia hypodermatically in such cases do good. In consequent pleurisy with effusion, it is justifiable to evacuate by aspiration.

## FULTON COUNTY.

The thirty-ninth meeting of the Fulton County Medical Society was called to order by President Chapin at Canton, Ill. Dr. Baxter of Astoria presented a paper on Eclampsia that was freely discussed by all present. Dr. Veda C. Murphy of Cuba presented a paper on the Opsonic Index. Dr. Coleman of Canton presented a paper on Leukemia. The president appointed Drs. Rogers, Baxter and Scholes to prepare a program for the October meeting. Applications for membership were read from Drs. E. M. Price of Astoria; D. D. Kirby and J. C. Simmons of Canton. They were duly elected to membership. Dr. Charles Moorhouse of Marietta was also elected to membership. Dr. Scholes moved that the regular program committee arrange the programs two meetings in advance. Carried. The program committee reported the following, which was adopted, for the October meeting: Annual address, President L. R. Chapin; Malaria, W. R. Blackburn; Operative Appendicitis, A. C. Cluts; Trifacial Neuralgia, C. D. Snively; Neurasthenia, P. S. Scholes; Duodenal Ulcer, F. C. Robb; Typhoid Fever, Martha Richardson; Infant Feeding, Maud T. Rogers. Those present were Drs. Chapin, Baxter, Connely, Nelson, Coleman, H. H. Rogers, Hays, Putman, Robb, Regan, Maud T. Rogers, Shallenberger, Ray, Scholes, Veda C. Murphy, Kirby, Simmons, Blackburn and Adams. D. S. RAY, Secretary.

## LOGAN COUNTY.

The Logan County Medical Society held its regular bi-monthly meeting in the lecture room of the Deaconess Hospital, Lincoln, Thursday, June 27, 1907. Application for membership was received from A. D. Kirby of Chestnut, Northwestern '07, and upon the recommendation of the board of censors he was received into the society. Drs. Montgomery and Woodward of Lincoln presented a very interesting case of acromegaly in a man of 35 years. The case was of about seventeen years' standing. Hypertrophy well developed in legs and arms. Patient has been in habit of eating two pounds of sodium carbonate a week. Bones are nodular, as determined by palpation and x-ray.

## McLEAN COUNTY.

The June meeting of the McLean County Medical Society was held in the City Hall, Bloomington, at 8 p. m., on June 13, 1907, having been postponed one week on account of the high school commencement. The meeting was called to order by President Godfrey and the minutes of the last regular meeting were read and approved. Dr. J. L. Yolton reported for the board of censors favorably on the application of Dr. J. W. Dobson, who was immediately voted into the society. Dr. R. G. Yolton reported a case of extrauterine pregnancy—operated at about the ninth month with recovery. The fetus was exhibited. Also a case of uterine fibroid with specimen. Dr. E. L. Brown reported a case of intussusception of twenty-four hours' standing in a child ten months old. Reduced by large injections while holding child by feet with head down. Dr. R. A. Noble reported two cases, one of extrauterine pregnancy of about three months' duration, the other of placenta previa at term. The former was operated on and specimen exhibited, the latter controlled by podalic version and Credé method after delivery. Dr. F. C. Vandervort referred to a case of extrauterine pregnancy occurring in his father's practice years ago in which the placenta was removed and an abscess which formed in the pelvic cavity was opened and fetal parts discharged through opening, which later healed and the patient recovered and is living to-day at about 75 years of age. Dr. Bath reported a case of placenta previa with fatal hemorrhage. Dr. E. L. Brown also reported a placenta previa. Dr. Bath, delegate to the state convention made his report, emphasizing the importance given by the house of delegates towards more thorough organization of the profession to secure better legislation in order to combat 'isms, 'pathies, etc. He said the state has gained 500 members to the medical defense fund, while McLean County



has lost about twenty. This should not be. Dr. J. W. Smith, councilor for the district, spoke in behalf of better organization and unity of physicians. He stated that forty suits had been brought to naught through the legal defense movement; that there is \$1,900 in the treasury, which money is to be used to defend malpractice suits and is held by the state secretary. Dr. Smith also thought more effort should be made to increase our membership in the county society. Both Drs. Bath and Smith spoke of the advisability of taking into our society all ethical physicians in the county who are licensed to practice medicine by the state regardless of the school from which they graduated. Dr. R. A. Noble made a motion that the McLean County Medical Society have a "Boosters' Committee," which should include the councilor, appointed to increase its membership. Motion carried. The president appointed Dr. E. L. Brown, Dr. J. W. Smith and Dr. Vandervort as such committee. The name of Dr. Arthur E. Midgley was proposed for membership and referred to the board of censors. Dr. J. W. Smith recommended and Dr. Vandervort made a motion to the effect that the judiciary committee look up an attorney for the legal defense work and be given power to act, in view of the fact that the society does not meet until September; also that the secretary notify said committee of such motion. Motion carried.

F. H. GODFREY, President.

O. M. RHODES, Secretary.

#### MERCER COUNTY.

The Mercer County Medical Society held its annual meeting in Aledo, Ill., May 14, 1907.

Drs. Reynolds, McClanahan, McKilvey, Klinsmid, Mackey, Ramsey, Boyer, Wallace, Sells, Burtnette and Mesdames, Ramsey, Boyer, Wallace and Sells assembled at the Merchant's Hotel for dinner, after which the doctors adjourned to the court house for the afternoon session. The meeting was called to order by the president, Dr. V. A. McClanahan. The following committees were appointed: Necrology: Reynolds and Ramsey. Nominations: Boyer, Mackey and Reynolds. The committee on necrology reported resolutions as follows:

WHEREAS, The Great Physician has called from the ranks of the Mercer County Medical Society three of its beloved brethren; and

WHEREAS, We, the surviving members, are met in annual session; be it, therefore,

*Resolved*, That in the deaths of Dr. George Irvin, Dr. Harry S. Allen, and Dr. J. S. Hamilton, our society has lost three upright and worthy members, the profession has lost three able practitioners, and the State of Illinois three honorable citizens; be it further

*Resolved*, That these resolutions be kept on the records of our society and a copy be sent to each of the bereaved families.

J. WILSON RAMSEY,

M. G. REYNOLDS,

Committee on Resolutions.

Drs. Walter N. Boyer and A. N. Mackey, committee on ethics, reported as follows:

WHEREAS, The publishing by the press of the names of physicians attending upon medical or surgical cases is contrary to the ethical spirit of the members of this society; therefore, be it

*Resolved*, That the secretary request the publishers of all newspapers in Mercer County to refrain from mentioning the name of the physician in attendance upon any sick person, so far as is consistent and practical.

Officers elected: President, Dr. Walter Miles, Viola; vice-president, Dr. J. W. Ramsey, Aledo; secretary-treasurer, Dr. I. E. Burtnette, Joy; delegate, Dr. A. N. Mackey, Aledo; alternate, Dr. G. H. Moore, Joy.

Address by President V. A. McClanahan was given and a motion was carried that a copy of the president's address be sent to the State Journal and a vote of thanks be tendered him for his splendid work as president of the society. Dr. J. E. Kleinsmid, read a paper on Diphtheria. Discussion by Drs. Boyer, Sells, McClanahan, Ramsey and others.



## EXPLORERS.

V. A. McCLANAHAN, M.D.

*(Abstract.)*

Dr. V. A. McClanahan read his presidential address, taking for his subject "Explorers," in which he said the world may be divided into two classes, explorers and exploiters. The explorer always wants to know for the sake of knowing and unselfishly informing others. The exploiter always wants to know so that he may use his knowledge for his own selfish purposes. There may be a place in trade for the exploiter. In a profession he would seem to be out of place. The difference between a trade and a profession has been well expressed as follows:

"Trade is occupation for a livelihood; profession is occupation for service of the world. Trade is occupation for joy in the result; profession is occupation for joy in the process. Trade is occupation where anybody may enter; profession is occupation where only those who are prepared may enter. Trade is occupation often taken up temporarily until something better offers; profession is occupation with which one is identified for life. Trade makes one the rival of every other tradesman; profession makes one the cooperator with his colleagues. Trade knows only the ethics of success; profession is bound by lasting ties of honor."

When any professional man allows himself to become a mere tradesman, God pity the people among whom he lives. Trade might have said to Jenner "Patent your idea of protecting helpless humanity." Profession said "Give it freely to the world." While the vaccine discovery was progressing, Jenner said the joy he felt at the prospect of being the instrument destined to take away from the world one of its greatest calamities almost overwhelmed him. Could he have had the same joy in a mint of money? Paré, instead of keeping secret his discovery of the ligature, gave it freely to the world, saying in the preface of his large work on surgery, "For my part, I have disposed liberally to everybody the gifts that God has conferred upon me, and I am none the worse for it; just as the light of a candle will not diminish, no matter how many may come to light their torches by it."

Dr. McClanahan then took up the subject of anesthesia and paid a tribute to Morton, the practical man, and mentioned Pasteur, Lister, Koch and Walter Reed as pioneers in their several branches and closed by saying, "And so let us always be progressive and helpful, open minded, courageous and sympathetic. And let us not be mossbacks. Elbert Hubbard says that no joy in the world is like the joy of putting salt on the tail of a new idea. We all are and always can and should be, explorers."

## MORGAN COUNTY.

The Morgan County Medical Society held its regular meeting at the Library June 13, 1907, at 8 p. m., President E. L. Crouch in the chair. Fifteen members present. The paper of the evening was by Dr. Bowe. Subject, Ether as an Anesthetic. A discussion arose as to whether or not our society should have an alternate delegate to represent us at the state society in case the regular delegate found it impossible to attend. Action deferred until election of new officers, which occurs in December.

ALLEN W. KING, Secretary.

## ROCK ISLAND COUNTY.

The usual bi-monthly meeting of the Rock Island County Medical Society was held in Moline at the Manufacturers Hotel June 18, at 7 p. m. After dinner the meeting was called to order by the president, Dr. S. B. Hall. The following members were present: Drs. R. C. J. Meyer, Browning, Huiman, Peterson, Youtz, Long, Ludwig, Gardner, Minnick, Hall, Lamping, First. Dr. G. F. Johnson of East Moline and Dr. W. T. Huiman of Moline were elected to membership. The scientific program was then taken up. Dr. S. B. Hall of Rock Island gave an in-

teresting report of a case of extrauterine pregnancy. Dr. R. C. J. Meyer followed with a report of a case of prolonged pregnancy with death of the fetus. Reports of the annual meeting of the state society were given by Drs. First and Minnick, after which the society adjourned to meet again in August.

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#### VERMILION COUNTY.

The Vermilion County Medical Society met June 17 in the City Hall at Danville, called to order by the president, A. J. Leitzbach. Program: Anatomy and Physiology of the Liver, S. L. Landauer; Etiology and Differential Diagnosis of Gallstones, E. B. Cooley; Pathology of the Gall Bladder and Duets with Surgery of the Gall Bladder, H. W. Morehouse; Latest Opinions as to the Effect of Drugs on the Function of the Liver, H. S. Babcock. Dr. Cooley was unavoidably absent, but the other papers were concise, bringing out an interesting discussion. This being the last meeting before the summer vacation the committee had prepared a smoker and lunch following the program. E. E. CLARK, Secretary.

## NEWS OF THE STATE.

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Aurora reports 35 cases of smallpox in 13 families.

Dr. William J. Rideout, Freeport, has returned from Europe.

Dr. Alexander Gray has been elected health officer of Savanna.

Three homes in Belvidere are quarantined on account of smallpox.

Dr. Tolbert F. Hill, Athens, reports a number of cases of scarlet fever.

Dr. George W. Hall and family have returned after seven months in Europe.

Dr. William B. Kunze has been appointed health commissioner of Belleville.

The state has purchased 1,200 acres of land at Newcastle for the state epileptic village.

Three cases of smallpox are reported to exist at the University of Illinois. Champaign.

Dr. S. C. Thompson, of Arrowsmith, has bought the practice of Dr. Vanderhoof, at Byron.

By the will of the late John C. Proctor, Peoria, \$300,000 is given to the Cottage Hospital in that city.

Several cases of smallpox have been reported to the State Board from Tolono, Champaign County.

Dr. P. S. Weidman, Edwardsville, was found unconscious in his room July 9, and is still critically ill.

Dr. Arthur Leipold, Moline, has been appointed house physician at the University of Iowa Hospital, Iowa City.

Dr. Channing W. Barrett has recently been appointed a member of the gynecologic staff of the Chicago Polyclinic.

Dr. N. S. Davis, of Chicago, has resigned as dean of the faculty of the Northwestern University Medical School.

An automobile ambulance, equipped with the latest appliances, has been added to the equipment of Cook County Hospital.

Dr. Allen M. King, Jacksonville, was thrown from his automobile in a collision with a telephone pole in Virginia June 18.

Dr. W. A. Evans, Health Commissioner, is making a tour of the eastern cities, studying the various departments of health.

Malignant diphtheria has appeared in Arenzville. There has been one death in one family and four children are seriously ill.

Dr. Arthur R. Edwards has been elected dean of the Northwestern University Medical School to succeed Dr. N. S. Davis, resigned.

Dr. Thomas W. Curry, Streator, was operated on for appendicitis in St. Mary's Hospital in that city June 17, and is reported to be doing well.

Dr. James B. Herriek, of Chicago, received the honorary degree of A.M. at the annual commencement exercises of the University of Michigan June 20.

The inspector of the State Board of Health reports that there have been 112 cases of smallpox in Peoria and there are still 8 cases in the Isolation Hospital.

La Rabida, the Jackson Park sanitarium, of Chicago, had its formal opening, June 20, for members of the board and guests. On July 1 the institution was opened to the public.

A contract has been let for a building to accommodate 10 additional patients at the Edwards Sanatorium, Naperville, Ill., bringing the capacity of the institution up to 25 patients.

Dr. John F. Keefer has been elected president, Dr. Charles Parker, vice-president, and Dr. Stephen A. Allen, Rock Falls, secretary-treasurer, of the Sterling and Rock Falls Physicians' Club.

Dr. Don A. Vanderhoof, of Byron and Wheaton, Ill., with his wife and daughter, sail for Vienna, August 3, by the Mediterranean route. Dr. Vanderhoof will spend the winter in special work.

The Chicago Tuberculosis Institute is preparing to distribute copies of a consumption catechism prepared by the Board of Health of New York, among 600,000 public school children of Chicago.

Dr. Arthur Hitchens, Director of the Antitoxin and Vaccine Laboratories of the H. K. Mulford Company, is in London, engaged with Prof. E. A. Wright in the study of opsonins and vaccine therapy.

The Chicago Tuberculosis Institution has opened a free clinic for the diagnosis and treatment of tuberculosis at the Olivet House, 34 Vedder street, which is opened to patients Monday and Thursday at 10 a. m.

The internes and ex-internes of the Mercy Hospital of Chicago have recently formed an association. Its members consist of all those who have served as internes of the hospital, and at present numbers over 150.

The Northwestern University Medical School had its annual commencement exercises June 20 and conferred the honorary degree of LL.D. on Dr. G. H. Simmons, editor of *The Journal* of the American Medical Association.

Smallpox is reported at Belvidere, Iroquois, Winslow, Mechanicsburg, and Thomasboro. At Mechanicsburg no quarantine has apparently been enforced, and the smallpox patients have been mingling with others not affected with the disease.

Smallpox is reported from Aurora. Dr. Charles E. Crawford, Rockford, inspector for the State Board of Health, is in charge of the situation. At present there are nine houses under quarantine and in one house there are said to be 13 patients.

On June 14 burglars entered the North Shore Health Resort, Winnetka, Ill., and secured several hundred dollars, assaulted a woman patient of Illinois and an attendant and escaped in a buggy. The robbers have been captured and have confessed.

Lectures to women and girls in Chicago were delivered each Saturday afternoon in July at the Public Library and at the Academy of Science, Lincoln Park, under the management of the Chicago Women's Club and the Chicago Society of Social Hygiene.

A summer student at Green Hall, one of the dormitories for women at the University of Chicago, was removed to the Isolation Hospital July 10 on account of smallpox, and the 60 students in that dormitory were vaccinated by officials of the health department.



An entertainment was given by the Hull House Woman's Club of Chicago, June 23, under the auspices of the Chicago Branch of the Jewish Consumptives' Relief Society of Denver, to raise funds to assist in building an addition to the society's hospital in Denver.

Another night medical school has begun work in Chicago under the name of the Reliance Medical College. This makes four schools of this kind in the city. Its announcement states that 34 physicians have been enrolled on the faculty and that a class of 60 has already registered.

The Summer Tent Hospital, established by the *Chicago Tribune* early in June at Algonquin, has every tent filled. The new permanent hospital is expected to be ready to receive patients July 15. The tent sanatorium is in charge of trained nurses, and Dr. John A. Robinson is attending physician.

An active campaign is planned in the city of Chicago on the operators of illegal baby farms. These so-called maternity hospitals are a threat to the health and life of the infants committed to them, and the city administration, the state's attorney and municipal courts are united on a program for their extermination.

The distribution of 100,000 signs in Chicago, to be posted all over the city, was commenced recently by the commissioner of public works. The sign reads as follows: "Post No Bills. Don't Sweep Dirt into Street. Don't Spit on the Sidewalk. Don't Litter the Streets. Police Will Enforce the Above. Fred A. Busse, Mayor."

The Chicago Eye, Ear, Nose and Throat College has completed the purchase of a site, and within a year will begin the construction of an eight-story building, fitted for its uses, to cost from \$125,000 to \$150,000. The college owns the property at the southeast corner of Washington and Franklin streets, which adjoins the site just bought, so that it has a frontage on Washington street of 40½ feet and 80½ on Franklin.

Ground was broken for the new People's Hospital at Twenty-second street and Archer avenue, Chicago, June 16. The new building is to be three stories in height and of pressed brick and steel construction. The building is put up under the auspices of the People's Hospital Association, of which William D. Schaefer is president and Dr. I. Clark Gray secretary.

The ambulances of the health department of Chicago made 216 runs on the Fourth of July, or 40 fewer than those made for the previous week. They removed 120 sick or injured persons to the hospital, 15 to their homes. The ambulance surgeons treated 63 sick or injured persons at police stations, 9 at places of accident, and gave one treatment for heat stroke.

The American Association of Medical Examiners, at its June annual meeting, voted in favor of not accepting any reduction in the amount of compensation allowed by life insurance companies for the examination of an applicant, it being considered by all examiners present that the minimum fee of \$5.00 was low enough and that insurance companies should be willing to pay that amount for a proper examination and report of any applicant, irrespective of the amount of policy applied for.

The Lincoln Park Sanatorium, conducted by the *Daily News*, has opened for the season, with Dr. Bathena Coone as medical superintendent

and Drs. Louis L. Gregory, Julian E. Hequembourg, Willis B. Storer and E. Iles Kerlin as attending staff; Drs. Alfred C. Cotton, John M. Dodson, E. Fletcher Ingals, Edwin B. Tuteur, Frederick W. Belknap, Maurice L. Goodkind and Cassius D. Wescott as consulting staff, with three house physicians.

The Woman's Medical Society of the State of Illinois has been incorporated by Dr. Marion K. Bowles, Joliet, and Dr. Sara C. Buckley and Bertha Van Hoosen, Chicago. The purpose of the organization is to bring into communication the medical women of Illinois for the purpose of securing cooperation, promoting all objects of interest to women in medicine, and for increasing interest in and the membership of the Illinois State Medical Society.

The revocation of the license of the Irene How Sanatorium, Chicago, is said to have been recommended by Health Commissioner Dr. William A. Evans because the hospital has not complied with the ordinance which demands a room for the proper care of the dead, pending the removal of the bodies; or for the accommodation of patients with contagious or infectious diseases, and because no record has been kept of the deaths or of children taken for adoption, and because the physicians named as attending physicians are not in attendance at the institution.

The State Board of Health announces that the law providing for the free distribution of diphtheria antitoxin by the State Board of Health became effective July 1, but that on account of the delay in the details of purchase and manufacture the supplies will not be ready for distribution before October 1. Meanwhile physicians will be able to secure antitoxin from any of the agents of the board without cost to the poor on obtaining an order from the supervisor or overseer, as required under the act of 1905. Cerebrospinal meningitis has been added by the State Board of Health to the list of infectious diseases. Notification is required, and public funerals of individuals dying from the disease are prohibited.

The annual report of the Milk Commission of the Children's Hospital Society of Chicago for the year ending December 31 shows the uniform and gratifying increase over the preceding year. Equipment and methods in the laboratory have improved with the passing of the experimental stage. Every effort has been made to secure milk of good uniform quality. The methods of pasteurization, filtration and milk enrichment in the laboratory have served to make milk wholesome and uniform in quality and nutritious. The loss of sales is met by the contributions of those interested in the society's purposes. The commission has various stations distributed over the city, and the milk is dispensed according to their rules.

A new organization was formed at Atlantic City, June 6, to be known as the Association of Medical Teachers of the Diseases of Children. The aim of the organization is the advancement of the standard of the teaching of that department in medical schools. The organization will also consider particular questions relative to hospitals and their management and the treatment of children at dispensaries and homes. The following

officers were elected: President, Dr. Samuel W. Kelly, Cleveland; vice-president, Dr. Charles Douglas, Detroit; secretary, Dr. John C. Cook, Chicago; treasurer, Dr. George H. Cattermole, Boulder, Colo., and censors, Drs. William C. Hollopeter, Philadelphia; Harry M. McClanahan, Omaha, and Richard B. Gilbert, Louisville.

The Council of the Chicago Medical Society, at its regular meeting in June, endorsed the work of the Public Health Defense League, the national headquarters of which are in the Unity Charity Building at New York City.

The league has for directors some of the most prominent business and professional men in the country.

Its objects are as follows:

1. To combat all forms of quackery and charlatanism.
2. To prevent food adulteration and drug substitution.
3. To prevent the sale of narcotics and alcohol disguised as patent medicine.
4. To prevent the circulation of indecent medical advertisements.
5. To advocate the establishment of a National Department of Health.
6. To carry on an educational campaign for the spreading of accurate knowledge concerning the public health and inculcating of higher health ideals.
7. To protect the public health by assisting the constituted authorities in the enforcement of existing laws and by urging the enactment of uniform legislation in all of the states on matters relating thereto.
8. To cooperate with other societies interested in any public health problem, and ultimately to effect a plan of union or cooperation of all organizations interested in the public health.

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### MARRIAGES.

RAYMOND SAMUEL BROWN, M.D., Chicago, to Miss Mabel Collins, June 18.

RALPH C. MATHENY, M.D., to Della M. Rice, M.D., both of Galesburg, Ill., July 3.

T. MARTIN WIERSEN, M.D., was married to Miss Inga Norby, of Chicago, June 27.

DENNIS JAMES NORMOYLE, M.D., to Miss Alice Virginia Dunn, both of Chicago, June 25.

JOHN ZEIGLER, M.D., Farmer City, Ill., to Miss Clara Squires, of Godfrey, Ill., June 20.

THOMAS J. KASTER, M.D., to Miss Rose Agnes McMahon, both of Chicago, Ill., June 22.

WILLIAM HENRY BAHL, M.D., to Miss Edith Bruce, both of Chicago, at Joliet, Ill., June 14.

PETER J. McDERMOTT, M.D., to Miss Nora I. Gulshen, both of Kewanee, Ill., June 19.

FLORIAN EDWARD SCHMIDT, M.D., to Miss Anna Elizabeth Feaney, both of Chicago, June 12.

ALBERT F. KAESER, M.D., was married to Miss Jennie Latzer, both of Highland, Ill., June 26.

H. S. CHURCH, M.D., of Modoc, Ill., was married to Miss Ella Beare, of Ellis Grove, Ill., June 25.

MARTIN J. IVEC, M.D., of Chicago, was married to Miss Elizabeth Schall, of Joliet, Ill., June 12.

THOMAS W. TORMEY, M.D., of Madison, Wis., was married to Miss Eva M. Cole, of Geneseo, Ill., June 12.

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#### DEATHS.

GEORGE W. MANWAREN, M.D., Eclectic Medical College of the City of New York, 1891, died at his home in Fairbury, Ill., June 25, from uremia, after an illness of about two weeks, aged 56.

WILLIAM BRADLEY, M.D., Geneva (N. Y.) Medical College, 1864, formerly of Lockport, Ill., but latterly a resident of Evanston, died, June 30, at St. Luke's Hospital, Chicago, from cerebral hemorrhage, aged 69.

ARCHIBALD R. SMALL, M.D., Rush Medical College, Chicago, 1874, a member of the American Medical Association, Illinois State Medical Society and Chicago Medical Society, died at his home in Chicago, June 21, from disease of the liver, after an illness of two months, aged 56.

ALFRED H. CHAMPLIN, M.D., University of Michigan, Department of Medicine and Surgery, Ann Arbor, 1869, for a number of years a director of the school board of Englewood and later a member of the Chicago Board of Education, died at his home in Chicago, June 25, from diabetes, aged 66.

CHARLES HENRY MILLS, M.D., Medical Department, Western Reserve University, Cleveland, 1857, Illinois Army Board, 1862, Medical Department of the University of Nashville, Tenn., 1864, a member of the American Medical Association, one of the oldest practitioners of central Illinois, surgeon of the One Hundred and Twenty-fifth Illinois Volunteer Infantry during the Civil War, died from heart disease at his home in Champaign, Ill., July 4, aged 83.



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## ORIGINAL ARTICLES

### WHAT CONSTITUTES NEGLIGENCE?\*

C. D. PENCE, M.D.

CHICAGO.

A few years ago, in discussing the question of negligence in its relation to medicine, a physician of considerable experience made the statement that, in his opinion, one-half of all the mistakes which occur in the practice of medicine were due to negligence. This seems incredible at first thought, but perhaps it is not wide of the mark. If any large per cent. of errors in practice occur from negligence or carelessness, then it is reasonable to suppose that negligence will be the cause of many damage suits for malpractice, and we can not but say justifiably so. This is not all presumption, for court reports show that a large number of cases instituted against physicians for malpractice are based on negligence either in part or in whole.

In reviewing decisions from any considerable number of malpractice suits against physicians, it will be noted at once that negligence in some form is the basis of a very large per cent. of all the cases. It is true that many of these suits are not brought on one charge alone, but in a large number of cases negligence is the only charge, and in many other suits negligence is one of the several charges. Again, it will be noted that where judgment has been rendered against physicians negligence has been the charge sustained in a large per cent. of all the malpractice cases. The law says in regard to physicians that they must possess ordinary knowledge, ordinary skill and ability, and that they must use ordinary care and diligence. Hence we presume that anything less than ordinary care must be negligence. This presumption is undoubtedly true.

This only brings up the question, Under what laws are physicians to be helden? Before statute law was written the common law obtained and is still observed where statute law does not govern. In fact, the old common law was the basis of most statute law. The common law was perhaps in many ways more flexible than statute law; hence in many cases physicians were held to a stricter account than justice demanded. The general principles of law governing physicians are much the same

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\* Read before the Medicolegal Section of the Illinois State Medical Society, at the Fifty-seventh Annual Session, May 21-23, 1907.

as those governing other callings that demand special skill and knowledge.

Popular opinion, however, is inclined to enforce on physicians a stricter rule than that which is laid on other professions, and in some instances eminent jurists have coincided with this opinion. Fortunately in recent years our courts in most instances have not exacted more from us than they would exact from another profession in which special skill and knowledge is essential. Skill and care, when relating to the practice of medicine, are so closely related, especially when negligence is charged, that a consideration of both is here necessary. Men in our profession, by offering their services to the public, impliedly contract that they possess ordinary skill and knowledge, and this means the ordinary skill and knowledge possessed by the ordinary practitioner, located in the same neighborhood and engaged in the same line of work.

Justice Story says that in all these cases where skill is required it is to be understood that it means ordinary skill, for he is not presumed to engage for extraordinary skill or for extraordinary endowments or acquirements. Lord Chief Justice Tindall says every person who enters into a learned profession undertakes to bring to the exercise of it a reasonable, fair and competent degree of skill. The common law always held to this rule and but few jurists have ever held otherwise.

It is fair to presume, and jurists agree on this point, that the amount of skill, knowledge and care exercised in one section of the country might not at all be sufficient in another section. A physician residing in a sparsely settled country, his practice extending over a wide territory, and his opportunities for clinical observation and study limited, is not required to exercise the same amount of care as is the physician who is located in a large densely populated city, where medical libraries are of easy access and where medical education has every opportunity to flourish. nor is he required to exhibit the same degree of skill or knowledge. From all this, then, we see that care is enjoined and negligence is forbidden. What, then, constitutes negligence?

Negligence in correct legal phraseology, said a jurist, is very nearly synonymous with carelessness and signifies the want of care, caution, attention, diligence or discretion in one having no intention of committing an injury. It is a violation of the obligation which enjoins care and caution. Even when gross, the negligence is but an omission of duty.

Another legal authority says negligence is the omission to do something which a reasonable man, guided by those considerations which ordinarily regulate the conduct of human affairs, would do, or doing something which a prudent man would not do. In the decision of a case occurring in this state a few years ago, the judge, in his review, said: "A party is not negligent if he uses all the skill and diligence which can be attained by reasonable means and is not responsible for failure."

McClelland says, strictly speaking, the term is limited in its application to carelessness in the performance of professional duty. Carelessness is its proper synonym. Duties performed without care, caution, attention, diligence, skill, prudence or judgment are negligently performed. Acts

are so designated that are performed by one heedlessly, even where there is no purpose to omit the performance of duty. It is non-feasance, not malfeasance. It is the omitting to do, and not the ill-doing, this last being a want of skill. The same authority says the surgeon must not perform serious operations and leave the staunching of the hemorrhage to the patient and unskilled attendant. Nor must the obstetrician abandon his lying-in patient while in convulsions, nor after her delivery until the placenta is removed and all danger from postpartum hemorrhage is passed in one liable to this accident. The law implies that in the treatment of all cases which they undertake physicians will exercise reasonable and ordinary skill and diligence.

Another eminent justice says of physicians that they are also bound always to use their best skill and judgment in determining the nature of the malady and the best mode of treatment, and in all respects to do their best to secure a perfect restoration of their patients to health and soundness. This opinion allows but little latitude for carelessness or negligence and would seem to hold the physician to a strict account. After he has used his best skill and judgment in determining the nature of the malady and the best mode of treatment for it, he may still fail to secure a perfect restoration, and, even though he has done his best, he may be accused of neglect or lack of skill, because of such failure, and this was taken into consideration in the case of *Patten vs. Wiggin* (51 Maine, 594), when the magistrate, in summing up, said: "But physicians and surgeons do not impliedly warrant the recovery of their patients and are not liable on account of any failure in that respect unless through some default of their own duty." Bad results which are or may be the result of negligence are not always due to the negligence of the doctor, although he may be charged for them, and sometimes is held for the negligence of others under certain circumstances.

Concurring or contributory negligence arises when both physician and patient contribute to produce the injury complained of. The verdicts of these cases vary somewhat; it is difficult sometimes for the doctor to prove that the bad result was caused by the patient's negligence more than by his own. In the case of *Wilmot vs. Howard*, wherein the defendant was sued for lack of skill in reducing a fracture of the plaintiff's arm and for negligence in caring for it afterward, it was shown conclusively that the plaintiff was to return to the defendant's office at certain dates for inspection and further treatment, if needed, which he did not do. It was shown, too, that the defendant saw the plaintiff but once after the time of reducing the fracture. It was shown by the plaintiff that the splints and dressings were not skilfully applied, the result was not good and there was much pain and distress. The jury was instructed fully and no exceptions were made to these instructions, except so far as they related to the degree of knowledge and skill a surgeon should possess. The jury returned a verdict for the plaintiff.

Elwell says the patient may be negligent to a certain extent and yet the physician has been so negligent that ordinary care on the part of the patient would not have prevented the unfortunate result and the patient

will recover. In support of this he cites the cases of *Clark vs. Kerwin—Parker vs. Adams* (12 Metcalf, 417), *Chaub vs. Porter* (9 Minn., 260) and others.

In the case of *Berge vs. Gardiner* (19 Conn., 507) where contributory negligence was charged, the judge, in his decision, said: "Though a physician may be guilty of culpable negligence, yet if his act was not wanton and intentional and the patient essentially contributed to produce the results, he can not recover."

Again, we find cases arising against physicians for the negligence of those working under their direction, such as assistants, nurses or medical students. The Supreme Court of Minnesota recently had a hearing before it where a physician had been sued for negligence. The patient, while still under the influence of anesthetics, was burned on the leg by a hot water bottle which had been placed in the bed by a nurse. There was a verdict for the defendant. This seems to be a rather frequent occurrence.

In 1906 the Supreme Court of Louisiana heard a case in which three physicians were sued for the negligent or careless act of a nurse who dropped alcohol in a patient's eye instead of medicine. While there was no permanent damage and but little temporary disturbance, yet there was a verdict rendered against one of the defendants who was the owner of the sanitarium in which the patient was treated. The other two defendants who were not owners of the institution were not held. Another case of interest here is that of *Awde vs. Cole* and another tried in the courts of Minnesota which was an action to recover damage for alleged negligence on the part of defendant physician, first, in the diagnosis of appendicitis, in the performance of the actual operation and in the subsequent care of the wound; second, in burning the plaintiff's leg after the operation and in the subsequent treatment of that burn. The jury returned a general verdict for the plaintiff and special verdicts finding that the defendants were not negligent in the performance of the operation or in the subsequent treatment of the wound, and that the nurse who put a hot stone in the bed which caused the burn of the plaintiff was a servant of the plaintiff and not of the defendants, and at the time the plaintiff received the burns on the leg we believe the defendants were responsible for the actions of the nurse. The Supreme Court held there was error and granted the defendants permission to apply to the trial court for a new trial or judgment.

Charges of negligence are brought more frequently in certain classes of cases. In a series of fifty-two suits for malpractice against physicians, negligence entered into the charge of thirty-seven. Of the thirty-seven suits in which negligence was charged, sixteen were fractures or dislocations, nine were surgical, three were x-ray burns and three for errors of nurses. Two were for operations beyond that to which the patient had consented, one for a faulty diagnosis and one for a faulty anesthetic. Out of the entire fifty-two cases, judgments against the physicians were rendered in twenty-two. Out of the thirty-seven cases in which negligence entered as a charge, judgments were entered against the physicians



in seventeen. This series of cases was tabulated from *The Journal* of the American Medical Association and were reported during and since 1902.

In tabulating the cases handled by the Medicolegal Committee of the Chicago Medical Society, we have a slightly different result. We notice the fashions are changing somewhat. Out of eighty-four suits, or threatened suits, negligence entered into the charge of fifty-two.

Of the fifty-two suits, or threatened suits, in which negligence was the charge, or a part of it, eight were brought for fracture cases, twelve were for surgical cases, ten were for obstetrical cases, seven were x-ray burns, ten were for medical cases and three were for faulty anesthetics and one for abortion. It seems to be quite the thing to find fault with the obstetrician. In none of these cases have judgments been secured, but some of them are still pending. In reading the literature of these cases it will be noticed that lack of attention to the patients is responsible for the charge. In the case of *Bowman vs. Greene* the proceedings were against a physician for malpractice in an obstetrical case. The testimony showed that thirty-six hours after delivery a second physician was called, at which time the placenta had not been removed and the bladder had not been evacuated since parturition. The witness, who was the second physician called, gave it as his opinion that the placenta and distension of the bladder should have been removed earlier and that it was negligent not to have done so, and upon this testimony a verdict for the plaintiff was returned from the lower court, but this was reversed by the Supreme Court for error.

Malpractice suits for negligent treatment of confinements seem to be increasing. Those cases followed by sepsis are especially liable to cause trouble for the doctor. Recently testimony was offered against a physician for not having used a scrubbing brush in the sterilization of his hands, and that his linen was not changed sufficiently often during the time of his attendance on the patient. The laity are beginning to know that asepsis is required and they demand it.

Any imperfect result of a fracture is liable to bring against the physician the charge of negligence and lack of skill. In the case of *Smother vs. Hanks* the charge was negligent, ignorant and unskilful treatment of the plaintiff's arm, the bones of which had been fractured near the wrist. The result was not perfect. The arm and fingers were crooked and stiff, perhaps permanently so, perhaps not. At the first trial the plaintiff secured a verdict for \$2,000. At a new trial this was reduced to \$1,200. At the third trial the verdict was reversed because of an error in the instructions to the jury of the preceding trial.

Just what is ordinary care or what becomes negligence is usually a question for the jury to decide, but it is certain they are more likely to favor the physician if he has seen his patient frequently and it is evident that he has tried to do his best for that patient. Physicians do not visit their patients frequently enough. If patients are left alone for a few days and something unusual occurs, they immediately think the doctor has been negligent and frequently courts are of the same opinion.

The law is fair with us. It does not demand unusual aquirements, neither does it demand perfect results, but it does not tolerate negligence. When we learn to look at the question from the standpoint of the law as well as from the standpoint of medicine, we will have discouraged many charges of malpraetice.

### DEGREE OF SKILL REQUIRED OF A PHYSICIAN.\*

C. W. HALL, M.D.

KEWANEE, ILL.

Fortunately for us as a profession, the degree of skill required of physicians has been defined by the law in a manner that is plain and definite, and I feel that we have no just cause for complaint as regards the construction of the law as given to us in many decisions.

In the beginning I want to give due credit to two works I have consulted in preparing this paper: Hamilton's *Legal Medicine* and the Brochure sent out by the Arlington Chemical Works, New York, entitled "The Law and the Doctor." The latter has condensed the matter in such a manner that I have found it an invaluable aid.

When a doctor accepts a case, the law says he contracts to furnish certain things:

First.—That he will bring to that case a reasonable degree of skill and learning.

Second.—That in the treatment of that case he will use reasonable and ordinary care and diligence.

Third.—If there be room for doubt, he will use his best judgment.

A breach of this contract in any particular constitutes malpraetice.

The question naturally arises, "What is a reasonable degree of skill and learning?" The legal decisions all hold that we are not required to have the "highest" degree of skill, to be "thoroughly" educated, but that "proper," "reasonable," "ordinary" knowledge and skill are required. I might quote what our own Justice Craig said in the case of *Barnes vs. Means*, 82 Ill., 379:

"The law requires appellants, who hold themselves out to the public as physicians and surgeons, to possess, and in their practice use, ordinary skill in their profession. While perhaps they would not be required to possess that high degree of skill which the most learned might acquire in the profession, yet they are bound to have, and in their practice use, that degree of skill which is ordinarily possessed by physicians in practice."

To my mind, the word "ordinary" in all these decisions is the most valuable. It simply means that the skill required of me is the skill used ordinarily by doctors in similar localities. The law says a country doctor should not be expected to possess the skill that city surgeons possess. I will quote from the instructions which the judge gave in the case of *Small vs. Howard*, 128 Mass., 131:

"The defendant, undertaking to practice as a physician and surgeon in a town of comparatively small population, was bound to possess that

\* Read before the Medicolegal Section of the Illinois State Medical Society, at the Fifty-seventh Annual Session, May 21-23, 1907.

skill only which physicians and surgeons of ordinary ability and skill, practicing in similar localities, with the opportunities for no larger experience, ordinarily possess, and he was not bound to possess that high degree of art and skill possessed by eminent surgeons practicing in large cities and making a specialty of the practice of surgery."

It would not be right to say the degree of skill I must use is the degree of skill used by my competitor, for my competitors might be illiterate quacks. Mr. Justice Worden, in the case of *Gramm vs. Boener*, 56 Ind., 497, says: "There might be but a few practicing in the given locality, all of whom might be quacks, ignorant pretenders to the knowledge not possessed by them, and it would not do to say that, because one possessed and exercised as much skill as the others, he could not be chargeable with the want of reasonable skill."

The rule, in its most generally accepted form, is that the skill and learning required of physicians is that "which physicians and surgeons practicing in similar localities possess."

This brings us face to face with the fact that we must not depart from recognized remedies and methods of treatment. If we do, we do so at our own peril. This fact would seem to retard progress, but the truth is we are not liable unless our departure has been unduly radical and has resulted in positive harm to the patient, and the harm must be positively proven.

Hamilton says: "Condemnation of experimental treatment, strictly speaking (for all treatment is more or less experimental in a general sense), may be carried so far as to constitute a serious bar to progress in medical science. An experiment is not always to be regarded as culpable of itself, for the reason that there is not, nor can there ever be, a legal code containing the rules of medical science. On the contrary, the thoughtful and scientific physician will always endeavor to individualize each case in its own treatment and proceed in accordance with the dictates of his own judgment. He is, therefore, often justified in acting in opposition to established rules. Progress in medical science depends upon independent research and the free selection of methods of procedure. Therefore, not even an untoward result of a course of treatment differing from that which is ordinarily pursued need necessarily, as has been assumed, be construed as malpractice. Even good results do not always protect the surgeon against reproach. A new and, therefore, untried procedure may, despite the fact that the patient died in consequence of its employment, be regarded as reasonable and justifiable.

"This is just as true as the proposition that a standard operative procedure in which all the rules laid down by authorities are followed frequently fails to save the patient, and may even be directly held responsible for his death. If the surgeon is able to give such reasons for his course as are satisfactory to scientific men, and has employed the new procedure with the care and due attention to all of the possibilities in the case, and in good faith, then he is not to be mulcted in damages because of an unfortunate outcome of his effort to improve upon older and probably not more satisfactory methods."

The Supreme Court of Maine holds on this question, *Patten vs. Wiggins*, 51 Maine, 594, that "if the case is such that no physician of ordinary knowledge or skill would hesitate, and but one course of treatment would by such professional men be suggested, then any other course of treatment might be evidence of a want of ordinary knowledge or skill, or care and attention, or exercise of his best judgment, and the physician might be held liable, however high his reputation."

The law requires more skill from a specialist than it does from a general practitioner. The law defines a specialist as a physician or surgeon who applies himself to the study and practice of some particular branch of the profession. Being employed because of his peculiar knowledge and skill in that branch, it would be fair to expect more from him than from one in general work. In the case of *Baker vs. Hancock*, Ind. App., 63 N. E. Rep., 323, Justice Roby says: "If he possesses no greater skill in the line of his specialty than the average physician, then there should be no reason for his employment; possessing such additional skill, it becomes his duty to give his patients the benefit of it."

The results obtained in a given case is not proof of skill or lack of skill. Hamilton says: "To the fair and impartial mind it is easily apparent that, until medicine becomes an exact science, in a certain proportion of cases failure must follow the efforts of the best informed men, the failure being attributable to the conditions for which the treatment was applied as well as to errors of judgment on the part of the practitioner. The errors, however, need not necessarily be culpable, *a priori*, as surgeons are but human and are liable to error in common with others of the race."

It, therefore, follows that, while the surgeon is bound to give his patients the benefit of his best judgment, he is not liable for a mere error of judgment, unless it can be shown that the latter is so gross as to be inconsistent with reasonable care, skill and diligence.

The employment of a surgeon does not, in the legal sense, imply a contract to cure. Many decisions have been given on this fact in Kansas, Michigan, Minnesota, Nebraska, New Hampshire and Ohio, so we can feel that we have ample protection, no matter how disastrous the results may have been, provided we have used ordinary skill and diligence.

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THE LEGAL STATUS OF THE DOCTOR'S FEE; WHAT HE  
SHOULD DO WHEN THE PATIENT IS DISSATISFIED,  
AND WHEN THE PATIENT SUES FOR MAL-  
PRACTICE.\*

B. B. GRIFFITH, M.D.  
SPRINGFIELD, ILL.

The doctor's fee for services rendered to an individual or corporation has the same standing in law as that of any other claim. The amount to be charged for a given professional service is a question of locality and regulated by the profession of the locality. This is usually conceded by the courts, although the court or jury sometimes expresses an opinion as

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to whether the amount charged for services is seemingly exorbitant or not. The wife and husband are jointly liable for family expenses, and medical services are so considered by the court. The one calling a doctor does not necessarily assume the responsibility for his fee. The one receiving the benefit of the doctor's services (unless a minor or dependent) is the one whom the law says is expected to pay the doctor for said services. In the event of a claim against an estate the doctor's fee for services during last illness is placed in the fifth class, four classes of claims having precedence over his.

#### WHAT HE SHOULD DO WHEN THE PATIENT IS DISSATISFIED.

Go back of this question. Why is the patient dissatisfied? Dissatisfactions arise from misunderstandings. Misunderstandings from neglect and inattention. Never permit a patient to become dissatisfied. He who tries to please and satisfy every one makes himself artificial and does so at the sacrifice of professional dignity and self-esteem. Dissatisfaction with a physician's services usually arise from:

1. Results that are not satisfactory to the patient. Conditions not as were expected or desired.

2. Charges or fee asked being greater than anticipated. More than the services were worth.

3. Seeming neglect or inattention on the part of the doctor. The patient's ideal medical adviser and the every-day doctor may be widely separated entities. Often patients form erroneous conclusions as to the termination of sickness or operative procedures; if such are expressed, they should be immediately corrected and not permitted to be held. Be frank with the patient or some one who is close to him. Become a good listener. When patients who have been the rounds consult you, it might be advisable, by questioning, to learn the cause of dissatisfaction with former advisers and thereby avoid the shortcomings, in his estimation, of your predecessors. It is absolutely impossible for one physician to always obtain results that will be satisfactory to every one who consults or employs him.

Upon the financial part of the practice of medicine, directly or indirectly, has probably arisen most of the dissatisfaction on the part of patients; always when possible endeavor to have your patients informed as to your expectations in the way of compensation. Unfortunately we usually do not find out that dissatisfaction exists until the services have been rendered and a settlement is requested. Sometimes an explanation will be sufficient to satisfy, sometimes a reduction in the account becomes necessary, and occasionally the only way to do is to sue and obtain judgment. The latter course does not satisfy the patient, but is the only recourse the doctor has for securing compensation. Should evidences of dissatisfaction show up, or a suspicion of the same arise while services are being rendered, endeavor to learn the cause thereof at once, if you can consistently, without losing self-respect, remedy it; otherwise request an immediate settlement and dignifiedly retire from the case. Always endeavor to forestall misunderstandings. Deal with patients in a way that there will be no misinterpretation put on what you say. When new pa-

tients consult you or engage your services it would be well to post yourself as to their financial responsibility, especially with regard to the medical profession, and then determine what action is best for your interests. "Short accounts make the longest friends."

Seeming inattention or lack of interest in their case or sometimes a mistaken diagnosis are causes of dissatisfaction, the patient imagining he has been wrongfully treated. Sometimes it is plain cussedness on the part of the patient. Frequently there are causes of a purely local nature that produce dissatisfaction, such as inharmony among the professions, meddlesome druggists, etc. These conditions we must ever be on the lookout for and act as the occasion demands.

No arbitrary rule can be formulated whereby dissatisfaction can be avoided. The doctor who is the student of human nature and understands mankind the best will have the fewest number of dissatisfactions arising in his professional work.

#### WHEN THE PATIENT SUES FOR MALPRACTICE.

Be prepared for such contingencies by being affiliated with some defense organization. As soon as you have an intimation that suit will be brought against you notify your defense company, giving them complete details. Give the dissatisfied patient to understand that you are to be defended by an incorporated, organized, active defense company, and in the majority of cases suit will be dropped. In the event of the case coming to trial, after the attorney has been selected, give him all the information regarding the case at your command. The defense company of which you are a member should plan and direct the detail part of the trial and post the attorney as to the law in the case. Select your expert and other witnesses and see to it that they are thoroughly familiar with all the facts in the case. Remember that, as a rule, quality of testimony counts for more than quantity. Sometimes, though rarely, it may be best to listen to talk about settlement. Such action, however, should only be contemplated after mature deliberation and consultation. As one malpractice suit usually means another, we should act in this matter along the line of prophylaxis, thereby, to a considerable degree at least, eradicating one of the most disagreeable possibilities of the practice of medicine, a malpractice suit.

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#### SEWAGE DISPOSAL—THE SEPTIC TANK.\*

E. F. BAKER, M.D.

JACKSONVILLE, ILL.

The disposal of waste is a fundamental problem for all living organisms. As the body takes food and builds up into its own peculiar structure, so it must continually break down and give off waste products, which, as a rule, if they accumulate, prove poisonous to the organism itself. This is the case with individuals; it is still more the case when large numbers of organisms are closely congregated in communities.

The political body resembles the individual organisms of which it is

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composed. It is subject to the laws of organic life; it has its income and its outgo, and a failure to remove the waste products of life is inevitably dangerous to the units of which it is composed. In spite of these facts, the attempt at scientific waste disposal is comparatively of recent date. The great problems of sanitation are not sufficiently taught in our great schools of learning. The great strides of progress along these lines have usually been the result of emergencies, such as the conditions in London in 1844 and conditions in Chicago prior to building the drainage canal.

Systems of water carriage are now almost universally employed for the quick removal of offensive waste from thickly settled communities, but, as often happens, however, the solution of one problem has given rise to another scarcely less difficult, namely, the sanitary and economic disposal of vast quantities of contaminated liquids known as sewage.

The volume of sewage discharged by modern communities is so large, especially where water is abundant, and the character of the sewage is always so objectionable, that the sewage disposal problem becomes, both from the economic as well as the sanitary point of view, one of the most serious with which modern communities have to deal. No law of sanitation is now more clearly recognized than the principle that the wastes of human life must be diluted with an adequate supply of water and quickly removed from the region of habitation.

The vast volume of water in which the waste elements are distributed makes the problem only the more difficult. In London, it is said, the average daily flow of sewage is 34 gallons per capita of population. In several of the smaller Massachusetts towns it averages about 100 gallons, while for the South Metropolitan district of Boston it is about 250. In this latter case, the yearly flow amounts to about 46 billion gallons, or a small-sized river.

The dangerous and the undesirable constituents of sewage consist of living germs and dead organic matter. The germs of almost any disease of man or the lower animals may gain access to sewage and, in the case of typhoid fever in particular, the infection may be transmitted through this agency so as to cause an epidemic on a disastrous scale.

The experiments of Jordan, Russell Zeit and of Frost indicate that typhoid bacilli in water, and especially in sewage—polluted water—for the most part, die in a few days. Yet the statistics of Lowell, Lawrence, Chicago, Philadelphia, Pittsburg and Newark indicate that the typhoid germs which survive a sojourn in sewage and water are sufficiently numerous to produce serious results.

The ocean furnishes seaboard cities with the most favorable possible conditions for disposal in water. The discharge of sewage into inland waters, such as lakes and rivers, and especially where simultaneous use is had for sewage disposal and water supply, as in the case of Chicago before the opening of the drainage canal and to a certain extent since, may be attended by the gravest dangers. It is evident that for inland cities, except those located on the largest lakes and rivers, some other process of sewage disposal must be substituted for the direct discharge into water.

The limits of this paper will preclude the consideration of the more general subject of sewage purification in its broader aspect—omitting any reference to broad irrigation or sewage farming, chemical precipitation, as well as intermittent filtration through sand, or the purification that takes place in running streams.

At an early day English sanitarians had noticed that in cesspools some action took place which led to the dissolution of the solid matters of sewage.

The septic tank or the anaërobic process of sewage purification owes its practical development to Donald Cameron, of Exeter, England, who, in 1895, installed a water-tight covered basin for the treatment of a portion of the sewage of that city, and gave to it the picturesque name of the septic tank.

C. N. Talbot, of Urbana, Ill., about this same time, built a sewage tank at Urbana, Ill., in which the liquefying anaërobic action was observed, and a larger plant was designed for Champaign in the year 1895 and built in 1897. While the septic tank is not entirely out of the realm of experiment, its principles are so well understood as to make it at present a highly, if not the most potent, factor in the sanitation of cities and towns not located directly upon living and permanent water courses.

It is unfortunately a fact that running water will correct the danger and offensiveness of sewage, if it has opportunity of running a sufficient distance, but with the teeming and increasing population of this great Mississippi Valley what city can lay claim to any portion of any running stream for its special and exclusive use for purposes of sewage purification? And, moreover, the great majority of our cities, towns and villages are not located upon permanent and living water courses.

The septic tank method of sewage purification is especially adapted to meet the wants of these less favored communities. The septic tank method is not chemical or mechanical. It is biological. It consists simply in availing ourselves of the action of certain bacteria which abound in Nature and require but favorable conditions in which to act. The term bacteria is so frequently associated with disease that we are apt to lose sight of the fact that the great office of this form of life is so largely beneficent, and in no way related to disease, but is directly beneficial to all living members of the animal and vegetable kingdoms—in fact, essential to life upon the face of the earth.

Pasteur first called attention to the existence of bacteria that not only live and perform all their functions without the use of the oxygen of the air, but to the growth of which species free oxygen is detrimental and even destructive. It was at first claimed that the anaërobic bacteria were alone concerned in the purification process of the septic tank, but later investigations have shown the action is not altogether due to strict anaërobes, but to organisms able to grow either with or without the presence of oxygen. The first septic tanks constructed at Exeter, England, were covered tightly. It soon appeared, however, that this type of construction is not at all necessary to the maintenance of anaërobic conditions. It has been found that if sewage be merely allowed to run slowly



through an open tank the general reaction appears to go on just the same. At Manchester, England, the results from the closed and the open tanks under like conditions showed no marked difference, and in experiments at Leeds the open tanks gave slightly better results.

For promoting anaërobic conditions, tight covers are, therefore, needless; but the prevention of odors, and the fly nuisance, and for protecting against wind and rain, a light frame cover may be advisable. In construction it is exceedingly simple. May be constructed of brick or cement or of concrete, either wholly or partly underground, and made to occupy very little room space. The most important point in the construction of the septic tank is its size in relation to the amount of sewage to pass through it in a given time. The tank is really a sedimentation basin in which the supernatant liquid and the settled sludge both undergo fermentation at the same time. Experiments conducted at Leeds indicate an appreciably greater removal in 24 hours than in 12 hours; while further prolonging the period to 48 hours or 72 hours is of no advantage. Clark and Gage, in 1905, have found that certain bacteria, especially active in sewage purification, increase rapidly during the first 24 hours of septic treatment, and after that time fall rapidly in numbers and, if the process is too prolonged, to smaller than in raw sewage.

The size of the tank should be sufficient to hold the flow of 24 hours, so that the inflow and the outflow may be equal or, in other words, the inflow of to-day should be the outflow of to-morrow; the first day's inflow should all be retained in the tank; the outflow commencing the morning of the second day. Some American sanitary engineers, notably Alvord, provide shorter periods, often only four to eight hours, with a further oxidizing over filter bed, with good results, but the general concensus of opinion of to-day is that the chief purification is accomplished in the first twenty-four hours.

The action that takes place in the tank is first by lysis, which may or may not be hydrolysis, i. e., decomposition with the addition of water to the molecule. Next they decompose the dissolved molecule, producing gases, on the one hand, and more stable peaty compounds, on the other.

Nitrogenous compounds are partially reduced to gaseous nitrogen, or free ammonia, and, together with cellulose, to carbon dioxid and marsh gas. The reaction is exothermic, evolving a certain amount of heat energy.

The amount of gas produced in the septic tank is variously stated by different authors—some as high as  $7\frac{1}{2}$  gallons of gas to the 100 gallons of sewage, and others to less than half this amount.

The composition of this gas varies widely, but, as a rule, about three-fourths is marsh gas—a hydrocarbon—and one-fourth free nitrogen.

The tank treatment alone without further filtration will render the ordinary domestic sewage practically free from all offensiveness, so that it may be discharged into an open ditch, creek or into a dry ravine without creating a nuisance, or it may be safely carried in the ordinary field tile and used to irrigate a lawn or field, but before being discharged into a general drinking water supply it should be subjected to further oxida-

tion over filter beds, which will complete the purification and render it safe to enter the general water supply.

It is maintained by some observers that pathogenic bacteria can not live in the septic tank; that the active bacteria of the process are antagonistic and destroy them.

The most important practical result of the septic treatment is the removal of suspended solids. Observations at the Exeter tanks show a reduction of 56 per cent. At Leeds 71, at Birmingham and at Lawrence 61, as the reduction or destruction, rather, of total solid constituents. When it is borne in mind that the relation the solids bear to ordinary domestic sewage is about 1 to 1,200, Mills says a sewage stronger than ordinary sewage contains 998 parts of pure water, and one part of mineral water, and one part of animal and vegetable matter, or two parts in one thousand.

The septic tank will destroy 60 to 70 per cent. of total solids, and 30 to 40 per cent. remains as sludge. The removal of sludge is not required oftener than every two or three years, and may be effected by a pump or dipped out by hand. This sludge is light and spongy when dry, odorless and has almost no value as a fertilizer. The chemists refer to it as the ashes of this process.

A residential tank can be made to operate just as effectively as a large one.

There are vast areas of suburban habitation that, by reason of circumstances, receive no benefit from sewers, living in remote portions and expectantly wait while sewers are being built in other portions of the city.

To these, this system offers the advantages of a means of waste disposal at once safe, sanitary, effective and at trifling cost. We would not argue that the residential tank when built would forever set aside the necessity of building sewer systems, yet we may say that their introduction and use in smaller towns and in suburban districts would be the means of delaying the necessity of their construction for many years and give the householder the modern conveniences of city life and at the same time insure a greater degree of safety. But under circumstances just cited suppose sewers to be introduced into the neighborhood at a later period. The effluent from these tanks can be readily diverted into the sewers, with the effect of eliminating the possibility of stoppage of sewers by reason of its contained solids, and also the necessity of flushing or expensive tearing up of pipes.

The process is continual and self-regulating, and requires but little attention except for the occasional removal of sludge. The Lawrence tank was not cleaned for six years, and at the end of that time was less than half full of accumulated sludge. At Lake Forest the tank has been operated for three years without cleaning.

These tanks can be multiplied in number and placed at each sewer mouth where required, the size depending upon the amount of sewage discharged. To throw raw sewage into a creek that is not constant, but liable to be dry a portion of the year, is becoming more hazardous to cities; as the increasing value of the lands through which these streams

flow, the land owners are liable to resent by injunction and other legal procedures the contamination of these natural water courses.

The septic tank offers an easy solution of this problem, as the effluent, after passing through the tank process, is harmless and odorless and unobjectionable to the most fastidious land owner. Stock may drink from the stream, receiving this effluent without harm. It is especially adapted to small plants, such as a creamery, the washings and waste of which creates one of the most noxious and offensive forms of sewage. The quick putrefaction of milk waste in the washings of vessels is apt to cause trouble in the vicinity unless disposed of by some quick method of treatment.

The whole sewage disposal problem is a matter that concerns the public health—a vexatious and troublesome one—does not appeal to the commercial side of us in any way; hence, there is no one proclaiming on the housetops the advantages of this or that method, yet a problem of grave import and one that must be met.

Although the practical working of the septic tank has been known for several years and in practical operation in a large number of cities throughout the United States and in Europe, still its value is not yet fully realized.

From my observations I feel confident in saying it is the coming method of sewage disposal under conditions found to exist in many of our populous sections of this and other states.

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## HOSPITAL ABUSES AND THE REMEDY.\*

GEORGE THOMAS PALMER, M.D.  
SPRINGFIELD, ILL.

The subjects which are before us for discussion to-night are so essentially basic and fundamental in character that there is the greatest danger of our floundering in generalities and broad theories rather than reaching practical conclusions and effective remedies.

There is not the slightest question as to the existence of the abuses which we have come together to consider. The case is established by the personal knowledge and experience of all those who are engaged in the practice of medicine, either outside the hospitals or in them. If not, a very little investigation will convince us that the evils are even greater and more far reaching than they are usually pictured.

Unfortunately, the great majority of physicians, while generally recognizing that medical charity evils exist, believe that we are dealing with some intangible, vague matter, involving some fine-haired principle of ethics, which may be satisfactorily and definitely disposed of by a set of resolutions deploring its existence.

It is my personal conviction that this is not a matter for virtuous but innocuous resolutions; but one which demands drastic action. It is not a thing to be merely tearfully deplored; but one to be forcefully proscribed in our rules of ethical and professional conduct.

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\*Read by invitation in Symposium on Medical Charities, before Chicago Medical Society, May 15, 1907. For discussion see Page 277.

I shall confine myself to the hospital abuses as they affect the physician; the abuses that are now tolerated by the physician, and the simple and effective way in which these abuses may be remedied by the physician.

The abuse of the charity service in the hospitals of our medical centers is not a matter in which the physicians of the larger cities are alone interested. The subject is rapidly becoming one of deep concern to the country doctor and the doctor of the smaller places. Already the out-of-town physician is beginning to look with suspicion, if not with open resentment, at the inroads which city hospitals are making upon his practice, and in some localities an attitude of latent hostility toward city physicians is quite apparent.

I have had an opportunity to observe the city hospital from several points of view. Practicing in the city of Chicago, I found a sentiment prevalent among the younger medical men that patients fully able to pay for medical and surgical service were regularly cared for and operated upon in the hospitals without fee. In my pilgrimages throughout the state, in my connection with the Illinois State Board of Health—in which I was in constant, intimate contact with physicians of village and hamlet—I heard innumerable complaints of incomes decreased and of good fees lost through the prodigal charity of the hospitals of cities. Later, as a practicing physician in Springfield, I have felt the personal losses occasioned by the open-handed hospitality of Saint Louis hospitals extended to some of those from whom I had reason to expect a portion of my income.

I have grown, in my more intimate study of hospital abuses, to classify the offending institutions into three general groups. The strictly private hospitals—particularly those owned and operated by physicians—are relatively free from the more objectionable abuses. The semi-public institutions—those conducted, as a rule, by churches or charitable orders or societies—are generally mismanaged and are responsible for much of the evil of which we complain, while the purely public institutions of the country are often conducted upon a plan which is baneful in every way.

It may be said that the semi-public hospitals are operated to the disadvantage of the physician. The mismanaged public institution, however, works a hardship not only upon the doctor, but upon the other hospitals.

The public hospital—such as Cook County Hospital—conducted at the expense of the people—is chiefly objectionable to the physicians of the city. There is no provision for pay for the staff and no charge is made for bed and care, and it is unquestionably true that many are cared for free at this and like institutions who are fully able to pay for all they receive, or at least capable of paying some hospital for care and nursing. The regulations for admission, however, are such that the country physician does not feel the results of this abuse.

The semi-public hospitals make a strong appeal to out-of-town patients, underbidding the hospitals of the smaller places through the extremely generous but unbusiness-like attitude of their unpaid staffs of eminent medical men. So general has this quest for outside patients



become that, while city physicians are now awakening to the reality and the seriousness of medical charity evils, it is in the rank and file of the country doctors that we will find the most vigorous complaints and the most bitter feeling against the injustice of the present methods of city hospital management.

The out-of-town physicians, who must be recognized as essential "feeders" for the city hospitals and who contribute not a little to the prosperity of city specialists, come before you with this indictment and with these charges which, they believe, may be fully substantiated and which, they are confident, are recognized by the majority of physicians practicing in the larger cities:

They charge that the members of the unpaid staffs of your hospitals operate upon and treat patients concerning whose financial conditions they know nothing.

They charge that, in so doing, the staff physicians not infrequently render medical service to the patients of other doctors—patients who are fully able to pay reasonable or even liberal fees.

They charge that certain hospitals enter into contracts with wealthy corporations to provide bed and nursing for their employes, and that these hospitals throw in, *gratis*, the services of their surgical and medical staffs.

They charge that, by this procedure, the hospitals appropriate to their own profit medical services worth large sums of money, which, in former days, went directly to the profit of the rank and file of the medical profession.

They charge that the superintendents and sisters superior of certain city hospitals enter into direct correspondence with well-to-do patients of country doctors and offer free operation by eminent staff surgeons, provided the patient promptly pays for his room, his board and his nursing.

And they charge that, in certain localities, this practice has become so generally known that patients promptly write these hospital officials when the local physician declares special treatment necessary.

In addition to this, country and city physicians alike contend that our purely public hospitals accept patients without due regard for their financial condition, giving free medical care and free beds to those who could pay for both.

In this connection I am told of an applicant for charity treatment who was advised that he would be operated without charge in one of the West Side hospitals, provided he paid for bed and nursing. Liberal as this offer would seem, it was not alluring to this opulent beggar, who preferred a free bed at the county hospital. It was afterward ascertained that he could have paid both surgeon and hospital without unduly depleting his funds.

And now, that I have presented to you the chief counts in the general indictment against the hospitals in medical centers, I desire to add a few words of evidence, and if this evidence can be substantiated—as I con-

tend it can—it will not be necessary for us to argue the reality of these baneful influences nor to urge the necessity of drastic remedial action.

In the few moments which are at my disposal I can not lay before you all of the evidence that has been presented to me. I would say, however, that, during the several weeks that I devoted to the investigation of this subject in Chicago, I was repeatedly told of contracts existing between one of the well-known hospitals and a railway company for the care and treatment of employes, wherein no provision was made for a penny of compensation for the staff and whereby scores of general practitioners were deprived of hundreds of dollars in fees, and my information came, in almost every instance, from men who are or have been associated more or less directly with the hospital in question.

I was further repeatedly told of a contract existing between another well-known hospital and an alien medical aid insurance company, whereby the hospital gave bed and nursing to the beneficiaries of the corporation at a very reasonable rate and threw in the services of the attending staff. Prior to that arrangement, I am told, medical fees constituted a very large part of the expense of the insurance organization and a not inconsiderable portion of the income of a number of physicians.

It may be remarked, parenthetically, that this is a brand of "contract practice" with a vengeance. It differs only from the contract practice forbidden by our better ethical sense in that, by this system, the medical profession receives no compensation at all.

As to the facts in the foregoing statements, I admit that I have no documentary evidence. I can vouch for the truth and accuracy only so far as I can rely upon the integrity of the eminently reputable physicians who were my informants. But of the following incidents I have more convincing evidence which may be shown to the skeptical with every detail unequivocally verified.

A prominent Springfield physician recently advised a patient to enter a local hospital for operation, and, knowing the patient's circumstances, set a fee for the service at \$100. After a week's delay the patient called upon the doctor and stated that he had decided to submit to operation, but that he would go to Chicago for treatment. He had reached this conclusion after receiving a letter from the sister superior of a Chicago hospital advising him that nursing and room would cost him no more than at his home hospital and that an eminent surgeon of the staff would operate him without fee. The patient could not be induced to be operated in the Springfield hospital at an expense approximating \$150, when the total expense under the distinguished Chicago surgeon would amount to less than \$50, with a trip to Chicago thrown into the bargain.

In another central Illinois city a wealthy farmer came to his physician with the statement that the superintendent of a Chicago hospital had offered to receive him for operation for hernia for the bare cost of hospital care, and had promised him the service of a surgeon of national reputation, without fee. The patient had computed his total expense at \$34. He suggested that, if the operation, including all nursing and incidentals, could be done at home for \$34, the family physician could oper-

ate. This was a distinct concession to home industry. The local doctor declined flatly to enter into any such competition.

Similar instances are too common in occurrence to require further recitation. I am satisfied, however, that every physician of extensive practice, residing within a hundred miles of a great medical center, can add his testimony to our already long list of cases.

One incident of hospital abuse strikingly illustrates the growing *popular* conception of the nature and purpose of hospital charity service.

When a woman was being operated upon in a certain Chicago hospital her husband sought the endorsement of one of the assistants to a draft which he desired to have cashed. To the astonishment of all present, the draft proved to be for a very large sum of money. The operator expressed his indignation that he had been asked to operate without fee when the husband had such an amount of available cash. In explaining the matter the husband stated that it was his conception, gained through the experience of those who had been similarly operated, that it was the custom of the hospital to operate upon ward patients without fee and that he did not know that ability to pay entered into the matter at all. The sincerity of his belief was demonstrated by the freedom with which he displayed his draft in the hospital.

There can be no possible advantage in a meeting of this kind to give names of hospitals or of physicians. We are considering the evil itself. Personality may be reserved for a day when it will be a potent factor in the operation of our remedy and then it may have full play.

If you will take my word for it that I have gathered my data from the most reliable sources, and that I have entered into the study of this situation with entirely unprejudiced mind, I will rest my case with the assurance that we are dealing with a system wholly unjust and unfair to the rank and file of the medical profession. We are dealing with conditions which, unless rectified, will create a spirit of open antagonism between the physicians of the country and the city.

The country doctor recognizes in the specialist of the city more thorough training, greater experience and superior facilities for diagnosis and cure. He yields to his city brother the patient who desires the services of a more eminent man than himself. He rightly feels, however, that the selection of the city specialist should rest upon better fitness and not upon lower price. He resents the diversion of much-needed fees from his pocket to the coffers of a hospital—however sainted its name may be. He does not begrudge the city physician the big fees—he does resent the wanton destruction of the small fees upon which he and his family should be permitted to live.

An estrangement of the country doctor from his city colleague can not but result in material loss to both. It is a significant fact that skilful operators are developing in the smaller cities more rapidly than ever before.

While it is true that the hospital authorities are directly responsible for the abuse of hospital charities, the general practitioner is disposed to blame the members of hospital staffs for permitting a continuation of

preventable evils. The outside physician can not conceive how groups of distinguished and forceful men can be entirely dominated by a handful of hospital officials. In other words, they are unable to comprehend how a sister superior, a board of lady managers or a council of superannuated divines can control the medical profession in institutions which, without physicians, absolutely could not exist.

Holding the members of hospital staffs as at least passively responsible, it is to these physicians that the medical profession naturally looks for the application of the remedy.

This remedy, it seems to me, is simple. It will be as effective as the real spirit of medical ethics and fraternalism is strong. Briefly my suggestions are these:

A statement of the financial condition of the patient should be made a part of the case history or the permanent record of every patient for whom gratuitous service of the medical or surgical staff is asked, whether it be in a public or semipublic institution.

It should be incumbent upon the hospital management to ascertain the financial condition of the patient and a certificate containing the facts, from a physician or clergyman, personally acquainted with the circumstances, should be made requisite to admission to the hospital for all those who are to receive free staff service. Doubtful cases, or those in which such certificates are not available, may be referred to organized charities for investigation. I am advised that not only are the bureaus of charities willing to undertake this work of investigation, but in Chicago they are already carrying it out for one free dispensary and in such a way as to materially limit the most flagrant abuses.

A demand by hospital authorities that members of the staff render service to those occupying pay beds and unable to furnish evidence of inability to pay for medical care should be met with absolute and unqualified refusal on the part of hospital physicians—except in the matter of immediate treatment in emergency cases. The entire staff should support a fellow-member in such a stand.

Our medical organizations should declare that the acceptance of a staff position, rendered vacant through the dismissal or forced resignation of a physician who has declined to yield to the demands of a hospital in such instances, shall be construed as essentially unethical and prejudicial to the welfare of the profession as a whole. The physician accepting such an appointment should be denied membership in our reputable medical societies.

The acceptance of such unethical persons by a hospital should indicate that the institution itself is not of such character as to merit the support of ethical physicians. This should apply to the remaining members of the staff as well as to the reputable men who refer cases to hospitals.

I am impressed that no large hospital can succeed if deprived of the support of the organized medical profession. In view of this fact, it must be admitted that whoever may have been responsible for the origin of



these evils, it lies within the power of our medical organizations to abate them.

The interest which this society has manifested in medical charity abuses has attracted more than passing attention. Your efforts must inevitably be accepted as a test of the strength of medical organization. In the words of an editorial in a recent medical journal, "the eyes of the whole medical world are now on Chicago. There is a city with the most magnificent medical organization in the nation. There abuses of free dispensaries and charity hospitals has been proven to exist in its most malignant form. The Chicago Medical Society has recognized the existence of these evils—has appointed a committee to abate them. There is the disease; there is the organization which may apply the remedy. There is the test for the efficacy of medical organization. Will it be found weak and ineffective?"

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### THE RELATIONS OF THE TEACHING OF CLINICAL OBSTETRICS TO THE PROBLEM OF MEDICAL CHARITIES.\*

CHARLES S. BACON, M.D.

CHICAGO.

Since the abuse of medical charity has come to attract the attention both of the profession and of the workers in sociology, it is important and very desirable, if not necessary, that every teacher of medicine should look into the methods pursued in his own department in obtaining clinical material in order to discover whether in his efforts to provide material for his students he is not injuring both his colleagues and the community by extending medical charity so as to pauperize the recipients. It is my purpose to-night to study the needs of the clinical teacher of obstetrics and seek to discover whether those needs can be met here in Chicago by the material at hand that all will admit is proper material for an obstetrical clinic.

I would premise that the problem of medical charity is to give necessary medical assistance to those unable to pay for it in the usual way, without doing an injury to the community by tending to pauperize the recipients.

Suffering must be relieved and needed help given to the poor. The general humane sentiment of mankind demands as much. But the physician alone should not be required to render this aid any more than the restaurant keeper should be required to feed the hungry, or than dry goods merchants should be compelled to clothe the ragged poor.

This medical aid to the poor can be paid for by the state. The patients can also pay for their treatment to a certain extent by serving as clinical cases for the instruction of medical students. Medical teaching is very important to the community. It is not necessary here, and it should not be necessary before any kind of an audience, to prove that the welfare of a community demands a well-trained medical profession. Moreover, the indigent sick are not injured by being used as clinical material. Indeed,

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\*Read in Symposium on Medical Charities before Chicago Medical Society, May 15, 1907. For discussion see Page 277.

it is generally admitted that in a teaching clinic patients are better served than in a pauper hospital where there are no students.

It is also coming to be recognized that there is a pauperizing tendency in the bestowal of medical aid without requiring any equivalent. If emergency cases like surgical accidents were the only ones thus helped, the temptation would not be so great, but when a pregnant woman learns that she can be confined free in a hospital and have the best of professional care and skill she will make no effort to accumulate means to properly pay for the services of a private physician.

Hence, while it may be necessary for the state to provide medical aid for the poor in localities where there are no medical students, still I think it should be the rule that whenever possible all medical aid should be given in teaching clinics. Can this principle or rule be applied to obstetrical charities?

It is precisely in these charities that all teaching clinics are forbidden, as shown, for example, by the rules of the Cook County Hospital. It is claimed that the sentiments of modesty of the patients are offended when they are exhibited to students. I do not know that it is ever claimed that they would be less well treated. I believe that the same forces that secure better treatment of patients when students are present to learn and incidentally to criticise would work in these cases and even with especial emphasis.

The sentiment of the community on this subject depends largely upon the way private patients are educated by their physicians. There was a time when a physician could hardly inspect the genital region. For example, the student was taught and the physician practiced "catheterizing under the sheet." Earlier still, men physicians were never called to obstetrical cases except in the greatest emergencies. This is now the situation in some oriental countries. Are the American women of the best classes less modest, less womanly, less civilized because they are intelligent enough to know the advantages of thorough disinfection and the importance of most careful watching of the progress of labor? An extension of this knowledge to the poorer women and to the community in general will dissipate the prejudices against the proper management of labor in teaching clinics.

Proper management of obstetrical teaching clinics is, of course, very necessary. This implies, first, a thoroughly competent and responsible teacher. He must not only possess a good degree of skill, but he must also be a good teacher and demand earnest, serious work. He must not allow any unnecessary annoyance to the patient, and especially no unnecessary internal examination. On the other hand, he must insist on a strict watching of the patient.

A second requisite in the proper management of an obstetrical case in a teaching clinic is limiting the number of students. In a private house the number should not exceed two, and in a hospital not more than four to six. Unusual operations may be done in an operating theater the same as surgical operations, but these operations are, after all, of but little value to the onlooker.

Having decided upon the principles which justify obstetrical teaching clinics, the question arises, Are there enough obstetrical charity cases to provide material for clinical students? A second question would be, Can the teaching clinic use all of the obstetrical charity cases?

We now turn to consider more closely the educational problem of the requirements of the teaching of clinical obstetrics and ask, (a) How much time in his course should each student give? (b) How many cases shall a student see. (c) What should be the size of the classes. (d) How many cases are needed in clinics?

There is in America a pretty general agreement upon the outline established by the Association of Medical Colleges. This schedule provides for 1,000 hours of work as the proper amount for a year. With 200 days in the course, this is an average of five hours work per day. Such a basis implies, therefore, that at least one-half of the time of the student is given to the preparation of his required work outside of the class or clinic room. An obstetrical clinic differs somewhat from other clinics in the fact that more time, practically all of the time, must be spent in the clinic room, while the student has, however, much of the time for study during the hours spent by the side of the patient. Now, during the four years' course, approximately 1,800 hours are spent in didactic lectures, 1,000 in the laboratory and 1,200 hours in clinics. The Association of Medical Colleges asks for only sixty hours for clinical obstetrics out of 1,200 clinical hours. I am certain that this amount is too little and much too small a proportion. No doubt the reason why the obstetrical clinic was given so few hours was that very many colleges have so poor facilities for obstetrical teaching that it was considered unwise to make the minimum requirement higher. I believe that all the best obstetrical teachers will support me in the contention that the obstetrical clinic should have at least 100 hours, or one-twelfth of the whole number of clinical hours. This would give, at five hours a day, twenty whole days for obstetrics.

How much work is required to fill this time profitably? I would answer on an average of one labor a day combined with at least daily visits to the puerpara and the babies. This work should be divided between the hospital and the out-patient maternity dispensary. Each has its advantages. In the hospital the students can see the case conducted in an ideal way, while in the dispensary he learns to deal with patients in their homes and to provide necessary equipment and accommodate himself to all varying conditions pertaining to private practice. Practically it will be found best to give one week to the dispensary work and two weeks to the hospital.

The basis of work is most easily arranged when six students constitute a class, subdivided into three squads of two in each. With this arrangement a squad of two work in the dispensary, while the other four are on hospital service. Of course, members of the hospital squads must be called to cases when several labors occur simultaneously, and frequently only one student will be at a case.

In this way 12 classes can have work each year providing for 162

students. This would require 365 dispensary and the same number of hospital cases. Each student would see 21 cases. To accommodate 365 cases a year in a hospital would require from 12 to 15 beds. It is not here the place to go into the question of the equipment of such a hospital. If a school has 200 students in a class instead of 100, of course, the capacity of the hospital and dispensary should be about doubled.

For the last five years the number of yearly graduates in Chicago has been over 700. For such a number of students over 5,000 patients would be required. Allowing for postgraduate instruction we could say that in round numbers about 6,000 patients a year would be desirable to furnish the obstetrical clinics. This would be about one-tenth of all of the confinements a year. Are there as many poor women in Chicago who can not pay for their confinements? The investigations of our committee on the abuse of medical charities are not yet so complete that we can answer this question. Dr. Renn informs me, however, that he would not consider that proportion very high. Nevertheless it is evident that the clinics can take care of all or nearly all of the obstetrical charity cases. It is not necessary, then, that the state provide for them, except as clinical use is made of the cases cared for by the municipality or the state.

The plan outlined above may receive criticism from both laymen and the medical profession. The objections of the former will probably be found to rest upon an unreasoning prejudice against teaching clinics, perhaps partly supported by mistakes made in the past by clinical teachers. The profession and especially the schools should recognize their responsibilities to the community and to the cause of medical education and keep a very close and critical supervision over all clinical teaching.

The objections of members of the medical profession who are not engaged in teaching will probably rest upon a certain amount of jealousy of their teaching colleagues. This would be largely avoided if it was apparent that only those patients absolutely unable to pay are taken into the clinics. Some provision certainly should be made to secure an investigation into the pecuniary condition of all applicants for medical assistance. With this arranged all the profession should welcome such a plan of obstetrical teaching as above outlined. We would not only furnish well-equipped graduates, but the clinics could be utilized by all of the profession of the city for postgraduate work. Such a plan of instruction would soon lift the practice of obstetrics to a plane corresponding to the advance in medical sciences, below which it has remained because of the inadequacy of clinical instruction. The benefits to the community would be still greater. Not only would the mortality and morbidity from puerperal infection, which has remained for the last fifteen to twenty years stationary, be reduced, but other accidents and affections of the gravida, para and puerpara would be greatly diminished and lead to a great saving to the community in the preservation in health of the most important class of the community, mothers.



## THE DISPENSARY ABUSE.\*

T. H. RENN, M.D.

CHICAGO, ILL.

In describing the conditions under which medical charities are at present administered, one is obliged to characterize it as a condition of anarchy—without supervision, system or order.

The isolated instances of abuse of medical charity with which you are all familiar I will try and present in the aggregate as clearly as the vast task will permit, calling your attention to the most conspicuous causes that tend to promote it. We are all familiar with the applicant who demands treatment at the charitable clinics on the strength of the fact that he has been a citizen of the country and a taxpayer for years, the sham pauper who assumes the most ragged attire to deceive the medical attendant that they might receive free treatment, thereby holding what they have and getting what they can. One of the members of our society was requested by the husband of a woman he was to operate on as a charity case to endorse a bank draft for \$1,000.

The thirty-seventh annual report of the Central Free Dispensary contains a report from the committee on dispensary, in which appear the following statements: "Out of seventy-six families whose financial affairs the bureau of charities investigated for us in 1906, only seven were reported worthy of free medical treatment at the dispensary, although the other sixty-nine had stated that they were unable to employ a physician. Some of the reports are very interesting. An elderly lady from the South Side applied for medical treatment. When asked by me whether she was not able to consult the doctor in his private office, she claimed to be almost too poor to pay car fare to come here. An investigation of the case by the bureau of charities showed, however, that this family, with four of its members earning high wages, lived on the first floor of a very handsome apartment house, paying a rent of \$35 a month. In another case a patient was found to earn \$20 per week. A young Jewish couple were looked up and found to occupy a beautifully furnished flat, the man making good wages. Another man who received treatment free was found to be the owner of a fine three-story flat building. Another party was discovered to have a good income as assistant buyer of a big downtown firm. One man who had his boy treated in the children's department for several weeks, and who claimed to be very poor, was found to be the owner of a good grocery store. Not infrequently we get patients who have a regular family physician whom they pay, but it seems that some physicians, instead of calling some specialist in consultation, send these private patients here, instructing them not to pay anything, as this is a free dispensary. We inform these patients, however, except a few purposely sent us for clinical practice, that they can not be examined here."

We realize that we have not been able thus far to pick out every one who is able to pay for medical services, but we have succeeded in a num-

\*Read in Symposium on Medical Charities before Chicago Medical Society, May 15, 1907. For discussion see Page 277.

ber of cases, and through the prompt work of the bureau of charities not only the undesirable persons themselves have been kept away, but also their relatives and friends who would shun an investigation. The total number of people refused treatment during the year 1906 was 448. The total number of patients treated was 28,977. When a person applying for admission appears to the distributor to be able to pay a physician, but denies such ability, a request is made to the bureau of charities on a blank provided for that purpose, and usually the next day a report is received from one of the visitors of the bureau, giving the exact and full facts about the applicant so far as they can be ascertained. It is believed that such a plan as this, if it were generally adopted by the dispensaries and hospitals of Chicago, would most effectively prevent further increase in the abuse of these medical charities. In some other states these abuses have grown to such proportions as to necessitate the creation of a state commission to control and regulate the dispensaries and hospitals. It is greatly to be hoped that this abuse will not attain such proportions in Chicago. It may be of interest to note that this matter has recently been taken up by the Chicago Medical Society and that a committee has been appointed to investigate and report. It is a satisfaction to feel that the Central Free Dispensary has already anticipated any criticisms and suggestions which may be made along this line by adopting efficient and satisfactory plans to prevent the abuse of this medical charity.

Individual instances similar to those mentioned in the report have occurred in the experience of almost every one of us. For instance, when this question was under discussion in the Southwestern Medical Society during the past winter, one member told of a family for which he had for some years been the attending physician. He was at the time attending one of the children, and was being paid his usual fee for each visit. While the child was under his care, the mother was attended and delivered by one of the staff of one of the leading maternity hospitals in the state, for which service she paid nothing. A member of the society from the West Side told of a woman in good circumstances who engaged him to attend her in confinement. Not hearing from her for some time, he called to see why he had not been sent for, and found that she had in the meantime been attended by one of the staff of a maternity hospital, for which service she had paid nothing.

Many of our hospitals have contracts with large corporations, agreeing to render free medical and surgical services to injured employes, the corporation merely paying for a bed by the year and thus securing unlimited services for a purely nominal amount. One could go on mentioning instances in which medical charity is abused until his hearers were convinced that, according to popular ideas, it is eminently proper for our citizens to receive something for nothing from the medical profession. It is shameful that free dispensaries which are such worthy charities in theory have become dangerous menaces to society in general owing to the fact that they encourage begging and dependence on charity to such an extent. Persons who can well afford to pay for their treatment and medicine have become so hardened and brazen that they will stand in

line for hours awaiting their turn that they may receive even their medicine for nothing.

If the brazen effrontery of these sham paupers does not entirely deter the worthy sick poor from seeking relief in these institutions set apart for them, it does interfere with the promptness and efficiency of their treatment by overcrowding and overtaxing the medical attendants, thus lessening the time and attention given to deserving patients.

Many of these institutions, intended for the relief of the sick poor, are supported by private donation and by public money intended for charity, which should not be wasted on those who can afford to pay for medical services. To use these funds in this manner is not only a serious breach of trust, but is an open encouragement to others to commit fraud.

To the community at large these influences are demoralizing, pauperizing the shiftless and lazy and adding the cost of their support to the practice of fraud, because it is so easy to deceive the individual who burdens others. Many persons take their first lessons in the successful admits them to these institutions for treatment.

A learned economist has said that all civilized communities have enacted laws having for their object the enforcement of certain restraints in appetite. He states that the so-called benevolent impulses of our nature which move us to give relief to those who appear to be in distress may often be the cause of creating a new lot of beggars. He advises that these impulses, which may lead to injury, should be restrained as well as the appetites. It remains for us to educate the press and public to the full danger of moral degradation and to the full value of efficiency of properly administered charity when associated with self-respect, and the latter is the goal to which we should aim to lead our charges.

The committee appointed by the council of the Chicago Medical Society to investigate this abuse of medical charity is under many obligations to Mr. Bicknell, superintendent of the bureau of charities, with whom we are cooperating. He has personally directed and supervised the gathering of the data on this subject, using his own office force and experienced investigators as far as he could consistently do without crippling the important work in which the bureau is engaged. To hurry the completion of this immense undertaking, we have employed three additional investigators to proceed under Mr. Bicknell's directions, whose duty it will be to verify the data already in hand and so complete its compilation.

In the table that I am using this evening I have tabulated the reports from thirty-four dispensaries, just as they came to hand, without thought or desire to affect the presentation favorably or unfavorably, and, although these findings fairly represent the methods of administering medical charity at the present time, I have no doubt that when we come to consider the full report conditions will appear in a more aggravated light, for it is from the least worthy that we are yet to hear. The following figures, therefore, rather underestimate than overstate present conditions. The investigation carried on by the committee on abuse of medical charities has shown that there are in Chicago at present about sixty

free dispensaries. We have complete reports from thirty-four of these institutions.

#### LACK OF PUBLIC SIGNS.

Only eight out of thirty-four dispensaries have public signs announcing that treatment is only given to the poor. Many people, well able to pay, go to these institutions ignorant of this fact, believing that they are not only welcome as long as they are willing to serve as clinical material, but that their attendance is solicited. In the remaining twenty-six dispensaries, there is no sign to indicate the object for which the institutions are conducted.

#### DISREGARD FOR THE NEEDS OF THE COMMUNITY.

In some localities, there are three to six free dispensaries facing one square; other localities noted for the poverty of the inhabitants have none. Some are situated in residence districts where flats rent for \$20 to \$45 per month. An instance of this kind was referred to the council to determine the propriety of maintaining an institution of that character in that particular neighborhood. Investigation by the bureau of charities showed that there was no need for a free dispensary in that locality, and that it was not properly equipped to serve as one; that its method of operation precluded its right to the name of free dispensary. On informing the directors of these facts and of the danger of creating a new lot of beggars they abolished it.

There are dispensaries located in every conceivable place in the city that seems to promise patronage. Some are behind drug stores where the medical attendant makes a practice of prescribing large mixtures to the mutual benefit of the physician and the proprietor of the drug store. No attempt is made to determine the underlying pathological condition of the patient, but they are encouraged to keep coming on the principle of "little drops of water, little grains of sand," etc. These dispensaries are purely mercenary in character, and are established purely for the purpose of working up business for the doctor and the druggist. There is at present no way of distinguishing them from legitimate institutions. Some means of supervising and controlling such places should be devised.

#### LACK OF INVESTIGATION IN REGARD TO THE ABILITY OF THE PATIENT TO PAY.

This is the cardinal fault. In thirty-two of the thirty-four institutions, the investigation consists of an interview with the patient. A few questions are asked, the purport of which the applicant at once apprehends and answers accordingly; as no attempt is made to investigate the home or financial circumstance of the applicant, any one can visit these dispensaries without fear of detection. The result is that only two or three of the thirty-four dispensaries can affirm that the sick poor receive the prompt, gentle and efficient treatment that their dependence entitles them to, and that they are not excluded or crowded aside by a horde of sham paupers. In one of our institutes treating 23,000 persons yearly, applicants are obliged to answer under oath that they are unable to pay



for treatment or be refused. I personally know of patients well able to pay who have received treatment at this institution, perjuring themselves in order to obtain it. Any person so lacking in self-respect as to apply for free treatment will not hesitate to commit perjury to avoid paying for services. Thus to the tendency to pauperization is added the moral degradation consequent in perjury. It establishes the fact that our citizens take to anything, for they take to perjury like ducks to water.

#### LACK OF CARE IN HANDLING CONTAGIOUS DISEASES.

Almost any form of contagious disease may be found in the waiting room of the well attended dispensary. It is not an uncommon occurrence to find infants or children with diphtheria or the early stages of scarlatina or measles, while adults in the later stages of consumption fill the cuspidors and dark corners of the room with ejecta from the lungs. All mingle together for hours without any attempt being made to isolate or separate.

#### LACK OF INSPECTION OR SUPERVISION.

The authorities take no notice of the existence of these institutions, though many are of low standard. There is, besides, an unwarrantable distinction made in this and other charities. Ask the county agent over the 'phone for medical relief and a physician is sent at once. No questions are asked, no reference is required. If the individual asks for rations—the average cost of which per year for 29,248 applicants who received aid during the year 1905 was \$2—a searching investigation is made before relief is given. If a physician's services are needed, no investigation is made, but strict inquiry is necessary in order to receive 30 cents' worth of groceries.

#### LACK OF SEPARATE WAITING ROOMS FOR MEN AND WOMEN.

In every institution where treatment is accorded to both sexes, patients are obliged to mingle together. It would appear that this would defeat the philanthropic purpose of an institute to a great degree, in that no respectable modest woman could submit to huddling up alongside of some big buck from the tenderloin, a sot from the river dock, or a syphilitic from whom the powerful odors of carbolic acid and iodoform emanate. None of the thirty-four institutions reported on have any properly equipped waiting rooms.

#### LACK OF SYSTEM IN KEEPING RECORDS OF PERSONS TREATED.

Fifteen of the thirty-four dispensaries have no record of the number of persons treated, and nineteen of the thirty-four have no record of the number of treatments given. Records should be kept and it should be the business of some one officially connected with the dispensary to note the data every year and to determine the per cent. of our inhabitants receiving medical charity compared with those receiving the other forms of relief.

This paper is in no sense a report of the committee on abuse of medical charity, but is merely intended to emphasize some of the striking

facts so far elicited in the hope of awakening discussion and of calling attention to present conditions. It is hoped that a complete report can be presented in a few weeks. The facts already discovered show that at present there are far too many free medical dispensaries in Chicago; that the existence of the great majority can not be justified by the only two legitimate reasons, viz.: relief of the worthy poor and the providing of proper clinical material for medical students; that, owing to the carelessness of our profession, unworthy and unnecessary dispensaries are exploiting both the profession and the public; that the number of persons annually receiving free medical services, approximating about 300,000, is vastly out of proportion to the number in our city actually entitled to such charity, and that, through the competition for patients, a large portion of the community is being systematically pauperized, resulting in great moral loss to the public and undeserved financial loss to the profession. A strict investigation and supervision of dispensaries should be inaugurated. Worthy and properly conducted dispensaries should be distinguished from unnecessary and loosely conducted institutions, and the latter class should receive the disapproval of the organized profession. No ethically disposed physician would allow himself to be connected with a dispensary which did not bear investigation.

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### THE SERUM DISEASE.\*

HENRY W. CHENEX, M.D.

Instructor in Pediatrics Northwestern University Medical College.

CHICAGO.

Since the use of therapeutic sera is becoming so common of late years and since they are being used for an ever-increasing number of diseases, it is well for us to consider the group of symptoms which occur as a result of their use. Heretofore we have been satisfied to dismiss these manifestations by calling them a serum exanthem or a serum arthritis, but a careful study shows that there is a definite symptom-complex which occurs with sufficient regularity to justify the designation, "The Serum Disease."

This disease occurs after the hypodermic injection of horse serum, and the frequency of its appearance and the distinctness of the symptoms will depend upon the individual disposition of the patient and upon the quantity of serum used. It is not the toxin or the antitoxin which the serum contains which is the cause of the disease, because the injection of normal untreated horse serum will produce the reaction as quickly and as frequently as a therapeutic serum.

As a rule, the clinical picture is somewhat as follows: From seven to twelve days after the serum injection, the patient begins to have fever, accompanied by a skin eruption, usually urticarial in character, a swelling of the lymph glands, generalized edema, a leukopenia and occasionally arthritis and albuminuria. The disease may last two or three days or in severe cases after the use of large quantities of serum some of

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\* Read before the Chicago Medical Society, May 29, 1907.

the above symptoms may persist for three or even four weeks. The course of the disease is always a mild one and none of the symptoms become urgent, neither are they followed by complications or sequelæ.

#### INCUBATION PERIOD.

In the majority of cases the time from the serum injection until the appearance of the first symptom, which is fever or the exanthem, varies from eight to twelve days. During this time the patient is free from any signs of this disease, and, as the fever or rash comes on suddenly, there are practically no premonitory symptoms.

A peculiar and interesting fact is, that cases which have received a former injection and ten days or more after the first are injected a second time with the serum will have a shorter incubation time, depending on the length of the interval between the first and second injection. That is, if the patient receives a second injection in from twelve days to six months following the first, he is almost certain to have an immediate reaction and the disease manifest itself in a few hours.

If the second injection follows the first at a longer interval, say from six months to a few years, the incubation time is shortened to five to seven days. Apparently the first injection of the serum puts the patient in a sensitive or susceptible state, so that a second injection occurring later than twelve days after the first shortens the incubation to a period varying from a few hours to five or six days.

#### FEVER.

This is perhaps the most constant single symptom of the disease and occurs in almost every case. The fever lasts two or three days in slight cases and from two to three weeks in severe ones. It is usually remittent in character, with an afternoon rise and a morning decline, the daily difference varying from one to four degrees. The duration and intensity of the fever is dependent partly upon the quantity of serum used and partly upon the individual disposition. Hence, after small amounts, like the ordinary dose of diphtheria antitoxin, the fever, if it occurs, lasts only two or three days, whereas following the enormous dose of scarlet fever serum sometimes given the fever may last two or even three weeks. Accompanying the fever the patient usually has some degree of restlessness, aching, irritability or malaise, as in other febrile conditions.

The pulse is accelerated to a degree corresponding more or less with the temperature.

#### ERUPTION.

The exanthem and the fever constitute the two most frequent symptoms of the disease. There is the greatest diversity in the appearance of the eruption. In a majority of the cases, the rash is urticarial in character, but in other cases it may be measly or scarlatiniform or polymorphous.

The eruption usually begins in the neighborhood of the point of the injection and spreads from there quickly and more or less symmetrically over the rest of the body. When belonging to the urticaria group, the

rash is composed of the typical wheals surrounded by reddened areas which may become thicker and confluent and sometimes edematous, always accompanied by an intense itching. This urticaria eruption is of short duration, seldom lasting longer than two or three days. When the exanthem is measly or scarlatiniform, it often occurs subsequent or as a sequel to the urticaria, so that the same patient may have two or three forms of rash.

#### ADENITIS.

The swelling of the lymph glands is a regular symptom and often precedes the fever and exanthem. The glands in the neighborhood of the injection area are the first to be infected, other glands being involved later. For instance, if the injection is made in the skin of the abdomen, the inguinal glands of the same side will swell first, then the axillary glands of the same side, and later perhaps the inguinals of the opposite side. The adenitis increases until the height of the fever and the exanthem is reached, when the size of the glands is marked and they are tender on pressure. As the disease subsides the glands do likewise. No case has been noticed in which they have been suppurated.

#### EDEMA.

Edema is a fairly constant feature of this disease. It is more or less generalized, but affects principally the face and dependent portions of the body and in severe cases can be easily seen. However, even in the slightest cases, we may demonstrate its existence by carefully observing the body weight, as is done to show the amount of edema in cases of nephritis. By weighing the patient at the same hour each day we will find that a temporary rise of the weight curve above normal will show the amount of edema. The duration of the edema corresponds more or less with the length of the disease, disappearing as the other symptoms subside.

#### ALBUMINURIA.

Albuminuria occasionally occurs, usually at the same time as the edema, although the edema often occurs without any signs of albuminuria or kidney involvement. The albumin content of the urine, when occurring, is always small in amount, sometimes only a trace being perceptible, and microscopically we find in the sediment a few hyalin casts and red blood cells. Of course, we must always bear in mind the possibility of a nephritis following the original disease to cure which the serum was given, as, for instance, diphtheria or scarlet fever. A careful consideration, however, of the albuminuria as it occurs in these diseases and in the serum disease itself will usually enable us to decide as to the cause.

#### BLOOD FINDINGS.

The red cells seem to be little disturbed, but it is an interesting fact that a count of the white cells will usually show a leukopenia during the height of the disease, the number of leucocytes in a cubic millimeter often dropping to 2,500 or 3,000. This low count seems to be due to a partial disappearance of the polynuclear cells, the lymphocytes appar-



ently remaining unchanged. Wright,<sup>1</sup> of London, found, some years ago, that the coagulability of the blood is diminished during this disease.

#### ARTHRITIS.

In a very small number, perhaps 1 or 2 per cent. of the cases of serum disease, the patients will complain of pain in the joints. The articulations most frequently affected are those of the hand and wrist and knee, although any of the others may be involved. No change in the joint is apparent on examination. There is no swelling or redness, but considerable pain is felt on motion and the patient may be quite uncomfortable as a result. This symptom, however, is of short duration, disappearing in a day or two or in a few days at the most.

The mucous membranes of the mouth, throat, nose and eyes are not affected in the serum disease.

#### DIFFERENTIAL DIAGNOSIS.

This disease must be differentiated from other forms of urticaria, from the drug eruptions, from measles and from scarlet fever. In the ordinary urticaria there is no fever, no glandular enlargement, no history of a previous injection, but often of a digestive disturbance.

Then, too, the serum exanthem appears first and worst around the point of injection.

In the drug eruptions, also, there is no fever nor adenitis, and by withholding the suspected drug the rash quickly subsides.

Of most importance is the differentiation from measles and scarlatina. As against measles: 1, The serum exanthem appears seven to twelve days after the injection; 2, the rash begins at the point of injection; 3, the glandular swelling; 4, the absence of mucous membrane involvement.

In some patients with a scarlatiniform exanthem it is almost impossible to decide between scarlet fever and the serum disease. In favor of scarlatina are the following: 1, The initial vomiting; 2, high fever; 3, angina with the typical tongue and oral mucous membrane.

#### OCCURRENCE.

In what per cent. of cases injected with horse serum will this disease occur? This depends almost entirely on the amount of serum injected, and hence it is hard to give accurate figures.

Pirquet and Schick, in their work,<sup>2</sup> give the best description of the serum disease, and they quote statistics to show that it appears in from 10 to 20 per cent. of the cases after the injection of small quantities, such as diphtheria antitoxin. But after the larger injections, such as 100 to 200 c.c. of scarlet fever serum, the disease occurs in 85 per cent. of the number. This seems to show that the susceptibility to the disease is universal, and that if the dose of the serum was still further increased the disease would manifest itself in practically every person injected.

The above facts are true of cases injected for the first time. Patients

1. Wright: *Lancet*, Jan. 18, 1896, and Sept. 19, 1896.

2. Pirquet and Schick: *Die Serumkrankheit*, Vienna, 1905.

injected a second time, ten days or more after they have been sensitized by the first injection, are almost certain to have the disease in every case.

#### CAUSE.

What is the cause of the serum disease? Various theories have been advanced, none of which is satisfactory. Ehrlich's side-chain theory has been invoked to explain it, and the formation of antibodies or of precipitins in the blood has been suggested as a cause, but the fact remains that we do not yet know what the complex organic processes are which unite to form this reaction.

In this connection some valuable work has been done by Rosenau and Anderson, of the United States Hygienic Laboratory.<sup>3</sup> They experimented with the injection of horse serum in guinea-pigs, and some of their conclusions are interesting. They found that normal or antitoxic horse serum is harmless when injected into a guinea-pig, but is poisonous to a guinea-pig which has been injected with horse serum ten days or more previously.

Diphtheria or other antitoxin plays no part in this poisonous action. All forms of therapeutic sera are equally poisonous; the so-called "refined and concentrated" and the dried serum being no exception.

Guinea-pigs may be sensitized to the toxic action of the serum by feeding them with horse serum or with horse meat as well as by injection.

If man can be sensitized in a similar way by the eating of certain proteid substances may not this throw light upon those interesting and obscure cases in which the eating of fish, sea food and other articles of diet habitually causes sudden and sometimes severe symptoms?

Rosenau and Anderson conclude by stating that they believe man may be rendered sensitive to the injection of a strange proteid substance, as is the case with the guinea-pig and other animals, and that this fact may account for some of the occasional serious symptoms following the use of a therapeutic serum.

#### TREATMENT.

The treatment of a case of serum disease must be largely palliative. For the fever, hydrotherapeutic measures should be tried, if necessary.

For the intense itching of the eruption, bathing with a solution of sodium bicarbonate or the use of a menthol ointment is often of benefit.

The edema and albuminuria are never serious enough to demand treatment.

It has been found that the salicylates have little or no influence on the arthritis of this disease. For the painful joints, hot applications and limitation of motion give the most relief.

In regard to prophylaxis, I believe we may reasonably expect that in time the poisonous element in the horse serum will be discovered and eliminated from it. Until then other measures have been suggested. As was mentioned, Wright<sup>1</sup> called attention to the diminished coagulability

3. Rosenau and Anderson: Bull. No. 29, Hygienic Laboratory, Washington.

of the blood following serum injections and he suggested the use of the salts of calcium to prevent the occurrence of disagreeable symptoms.

Following this suggestion, Netter,<sup>4</sup> in Paris, experimented with a series of 258 cases injected with diphtheria antitoxin in which he gave 15-grain doses of calcium chlorid on the day of injection and on the two days following. Of these, only 12 had skin eruptions. Of 258 control cases to whom no calcium was given, 35 had eruptions, apparently showing that the disease occurred only one-third as frequently following the administration of calcium chlorid. Further experiments along this line should be made to determine the dose and form of calcium salt necessary to get the proper effect, also to ascertain the best time to give the calcium. It will probably be found more effective to administer the calcium treatment from the sixth to the twelfth day following the injection, as that is the time the serum disease manifests itself.

Furthermore, in giving serum injections we should so time them as to avoid sensitizing the patient. That is, we should give one large dose of serum at the beginning or several smaller doses during the ten days constituting the incubation period, because if the second injection is given after a ten-day interval the serum disease is almost sure to manifest itself at once.

#### CONCLUSION.

This paper is not intended in the slightest degree to detract from the value of the therapeutic sera nor to advise against their use, because, in contrast to the good results of serum injections, the slightly disagreeable features of the serum disease need not be seriously considered.

But the writer would suggest the consideration of this disease in explaining some of the cases of fever or other obscure symptoms following the serum treatment, and he would also make a plea for the more careful study and experimentation in such cases, as we may thereby obtain information enabling us to prevent its occurrence.

369 East Sixty-third Street.

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### THE SURGERY OF THE KIDNEY.\*

H. M. RICHTER, M.D.

Professor of Surgery, Chicago Post-Graduate Medical School, Associate in Surgery,  
Northwestern University Medical School.

CHICAGO.

Because of the limited amount of time at my disposal, and the great breadth of the subject assigned to me, I will limit myself, first, to the presentation of one case or specimen representing each type of lesions discussed, the material being mainly from the joint clinical material of Drs. Besley, Kanavel, and myself at the Post-Graduate Hospital. Second, the diagnosis of surgical kidney lesions. Third, the surgical technic.

Considering kidney lesions as a whole, we at once recognize that all

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4. Jour. A. M. A., Aug. 18, 1906, p. 511.

\* Read at the Douglas Park Branch, Chicago Medical Society.

of our recent advances in diagnostic ability have been along the line of objective findings, and mainly in the development of technical methods. These, I take it, will be of the greatest value as matter for discussion, and I will consider them later.

#### ABNORMAL MOBILITY.

We recognize first, that normally the kidney has a slight degree of mobility, averaging about one inch in the long axis of the body. It lies in a bed of fat, between two layers of fascia that have been described by Gerota as a distinct capsule, but which most English writing anatomists do not seem to differentiate from the stroma in which the fatty capsule is imbedded. This capsule I have been able to demonstrate in the cadaver and utilize in operations for fixation of the kidney, as made up of a posterior layer arising from the sides of the bodies of the vertebrae passing laterally behind the kidneys, upward to the diaphragm and downward to be lost in the pelvic fascia; and an anterior layer, distributed over the same area, but lying in front of the kidney and meeting and becoming continuous with its fellow on the opposite side on the anterior surfaces of the vertebrae. This seems to me to be the most important factor in retaining the kidney in its position. It has no distinct ligament or, ordinarily, "meso-nephron." The pedicle, the peritoneum and intra-abdominal tension are probably all factors. We use the term "abnormal mobility" as fully descriptive of the type of disease; the terms "movable" and "floating" kidney as applying merely to degree and not to kind of lesion; that is, we do not differentiate a floating kidney anatomically from a movable kidney; a floating kidney is one that is very movable, whether because of a particularly lax Gerota's capsule and peritoneum or because of a true meso-nephron is immaterial.

One of the patients that I present to you to-night had a floating kidney that could be pushed over to the left of the median line and into the right iliac fossa, yet had no meso-nephron. Considerably more motility than just enough to demonstrate it is present in a large proportion of persons examined for the condition, but since there is an insensible gradation from normal to abnormal mobility, percentages given are practically useless, presenting the absurd variation as given by various authors from 3 to 50 per cent. in females; all give the percentage in males as small. It is a fact that in a large proportion of our female patients mobility of the kidneys, and especially of the right kidney, can be demonstrated, but I would suggest that the presence of mobility alone should not be considered an indication for treatment; that to justify interference of any kind, palliative or surgical, we must have distinct symptoms or definite objective evidence that harm is being done or symptoms caused.

The symptoms of abnormally movable kidney are hard to classify—there are recurring attacks of pain, varying greatly in severity, but often reaching the extreme grade that is found in renal stone; between attacks there may be perfect relief or a constant sense of discomfort. The pains are felt in the immediate kidney region and often are also reflected down-



ward toward the bladder. The severe attacks are constantly accompanied by nausea and at times by vomiting. There is a well-marked symptom group, consisting of violent colic with nausea and vomiting, that has been known for years as "Dietl's Crisis." Often there is considerable gastric distress, with an uncomfortable sense of dragging or weight or actual pain in the lumbar region, and these patients often appear to be neurotic in a high degree, the real cause of their trouble being entirely overlooked if the practitioner has not acquired the habit of making a complete physical examination of his patients. The urinary findings are not constant. Both of the patients whom I present to you for examination have shown urine varying from perfectly normal to markedly abnormal, showing blood, pus casts and albumen. One patient showed blood, pus cells, and albumen in one specimen passed during an attack, and normal specimens on two different days within a week of the attack. As is usually the case, blood and pus cells were present in microscopic amounts. That the sequelæ of this condition are not to be considered the least dangerous element, I wish to call your attention to the fact that of the few patients that I am presenting to you to-night one dates a pyelonephritis from this condition, while another has had an acute pyelonephritis while under observation within the past month.

At first thought one would say that an abnormally movable kidney is necessarily a palpable kidney and that its mobility could, therefore, always be demonstrated, but this is not true. A patient who is very stout, or who has a very long chest, or one that has a very great antero-posterior diameter, may easily have a freely movable kidney entirely out of reach of the examining hand; moreover, the kidney of a patient of ordinary build will often slip up into its fossa and be no longer demonstrable.

#### PERINEPHRITIC ABSCESS.

Let us first of all remember that a perinephritic abscess is not necessarily secondary to or in any way associated with renal disease. Among the conditions entirely foreign to kidney disease, that have a real clinical interest as possible etiological factors in perinephritic abscess, are: Appendicitis, the infection extending up along the posterior wall of the colon; cholecystitis, suppurative or gangrenous, the pus finding a plane of cleavage downward behind the colon; perforated duodenal ulcer; and empyema, with infection extending through the diaphragm, forming a subphrenic abscess and, by extension, a perinephritic abscess.

Perinephritic abscess may apparently be primary, no primary focus elsewhere being discoverable. It has followed a blow, but here the possibility of extravasation from the kidney must be considered. I have had one case develop in the course of scarlet fever, without discoverable involvement of the kidney, which probably means that bacteria excreted by the kidney caused a cortical infection with extension outward. By far the great majority of cases are secondary to renal infection, an acute pyelonephritis from stone, or ascending ureteral infection being the most common cause. In one of the cases presented to-night a tuberculosis of the kidney was the primary factor.

The symptoms are those of a localized infection, and the physical signs must be depended upon to determine the location. It must be borne in mind that, while in common with all acute infections, severe pain is likely to be present, the dulled sensorium from the serious septic poisoning, together with the looseness of the tissues about the kidney, allowing considerable extension before the pus becomes under much tension, combine to mask the true nature of the ailment which may be entirely overlooked unless a systematic examination of the patient be made.

#### ACUTE INFECTIONS OF THE KIDNEY.

We are principally concerned with ascending infections arising from previously existing infections lower in the urinary organs, and with hematogenous infections. Though a recognized lesion for many years, considerable impetus has recently been given to the study of the latter type of infection, and we recognize an acute septic nephritis of embolic origin exactly analogous to that of an acute osteomyelitis; that is, we have the development in a previously healthy kidney or in a kidney whose resisting power has been lowered by trauma from without, or by other analogous factors, or an acute suppurative infection in the parenchyma without ascending ureteral infection, or infection from adjacent organs, the source evidently being bacteria carried by the blood stream. Brewer states that acute infections of this type are usually unilateral, but may be bilateral.

Multiple foci of suppuration are found throughout the kidney parenchyma, evidently the result of an embolic process. Clinically these cases are characterized by the signs of intense sepsis, slight changes in the urine, consisting of a few blood and pus cells from the affected side and, locally, some enlargement of the kidney, with muscular rigidity, and sensitiveness to pressure. It is not sufficient in these cases to make a diagnosis of infection, for the ordinary surgical treatment by incision and drainage will obviously be inadequate; no single incision can possibly drain the multiple, unconnected abscesses. In the paper above referred to Brewer shows the fatal outcome of intervention of this form. Nothing short of excision of the kidney suffices; it will at once be evident that nothing short of an exact diagnosis of pathological condition will do if we are to inaugurate successful treatment. A study of reported cases reveals the difficulty of doing this. We can locate pus in the kidney; we can recognize in the absence of infection of the lower urinary organs a hint of the probable nature of the case, but it is not until we cut down upon the organ that the presence of multiple abscesses can be determined. They can usually be made out studding the surface of the organ, visible through the capsule, though incision of the kidney may be necessary to observe them. It is here that the surgeon must recognize the condition that he has to deal with and the necessity for radical action.

I wish here to emphasize the fact that this lesion must be a rare one and that we are extremely liable to confuse with it a type of infection that is pathologically a true ascending nephritis, though no lesion of the lower urinary tract may be discoverable. To make myself plain, remem-

ber that bacteria reaching the blood stream are very rapidly excreted by the kidney. For example, Fütterer has shown that a few minutes after injecting a culture of pus cocci into the jugular vein of a dog they may be discovered in the renal cortex and urine.

If now one of the ureters be tied, preventing the escape of bacteria on that side, a unilateral infection will follow, which is truly an ascending infection, the bacteria being excreted into the tubules and pelvis of the kidney and then, prevented from escaping, exerting their pathogenic action. I am indebted to Prof. Zeit for the information that he has personally demonstrated this action, and he points out that any factor which interferes with the ready escape of urine from the kidney acts in the same manner. The specimen of hypernephroma that I here present is a perfect illustration of the point that I wish to make. The patient entered the hospital with a tumor of the kidney. While under observation she developed a facial erysipelas which caused her death. There had in the meantime been *no* instrumentation of any kind, nor had there been any evidence of infection about the bladder. The postmortem revealed a hypernephroma, with a suppurative pyelitis of an ascending type, apparently an exact reproduction of Dr. Zeit's experiment on the dog, the tumor acting as the obstructing factor.

Acute renal infections of the ascending type are practically always preceded by evidence of infection of the lower urinary tract, which materially helps in directing attention to the nature of the trouble. Cystitis, of whatever origin, comes first in the list of exciting causes. The upward extension of a bladder infection to the ureters and kidneys is not, however, the simple matter that it may appear to be at first thought. The structure of the ureteral orifice at the bladder is beautifully adapted to protect the ureter and parts above from a retrograde flow of infected urine. The ureter enters the bladder by passing obliquely through the wall of the latter, so that distension of the bladder tends to close the opening and the orifice is further protected by a distinct sphincter which is closed through its normal tonicity except during the actual passage of urine; that is, urine does not trickle mechanically from the ureter into the bladder, but is forced into it in jets, during which the sphincter relaxes, to immediately contract down until the next jet of urine is forced through.

Why, then, should cystitis be the most frequent cause of infection of the kidney? We must recognize the mechanical factor of the damming back of the infected urine, with an ultimate giving away of the protecting checks at the ureteral orifice, as the prime factor in the ascending infection. There is, first, an infection of the urinary bladder, the source of which, for the present, is of no moment.

When drainage is perfect recovery from cystitis is usually rapid. The impossibility of giving the parts complete rest has an important bearing and may seriously delay recovery, but where the emptying of the bladder is materially interfered with, as by ureteral stricture or prostatic enlargement, we have, first, recovery interfered with as in poorly drained abscess elsewhere, with, second, an ultimate giving way of the sphincter

and dilatation of the ureter, converting bladder, dilated ureters and the pelves of the kidneys into one large, poorly-drained sack, with infection distributed throughout.

We must include also in ascending infections those cases of interference with drainage caused by calculi, ureteral torsion, etc., where bacteria excreted by the kidney are rendered capable of pathogenic action as explained above. The mechanical factor comes into play even in aseptic lesions in which imperfect or difficult emptying of the bladder results. The gradual giving way of the ureters and pelvis and ultimately of the calices results in a lowered resisting power, which renders the parts particularly liable to infection on the first passage of sounds or catheterization. Renal calculus carries with it a still further source of infection, since it is itself a product of bacterial origin and may itself contain the bacteria which, acting upon the tissues already injured mechanically, are enabled to start up active suppuration.

Acute infections of the kidney, of whatever origin, are characterized by the usual signs of infection, the severity of which depend upon how well ureteral drainage is able to take care of it. Thus an infection about a calculus in the renal pelvis may often go on to the very extensive destruction of the organ without marked clinical evidence of its progress, so long as the ureter remains unobstructed. At the other extreme come the very violent evidences of sepsis, with a fatal termination within a few days, where the infection begins in the parenchyma or the ureteral drainage is blocked.

The urinary findings are particularly interesting in renal infections. In one of the patients here presented, where suppuration supervened upon a floating kidney, no pus was found in the urine, though all the other evidence pointed so strongly to the nature of the condition that the patient was sent to the hospital and prepared for operation; within a few hours of the time set for operation pus appeared in considerable quantity. We had here apparently a complete obstruction of the ureter, resulting in a normal urine being passed by the patient. Usually pus is present in the urine from the beginning. The reaction of the urine is normally acid, and the presence in acid urine of pus in moderate amounts should suggest the likelihood of a renal origin, where the urethral channel and prostate are uninvolved, but these findings must be proven by obtaining the specimen by segregation or urethral catheterization to have a definite value. We may, in rare cases, have an alkaline, purulent urine coming from a dilated suppurating pelvis and kidney, a pyonephrosis when drainage is poor and the condition has gone on for some time.

#### TUBERCULOSIS OF THE KIDNEY.

As in the case of pus infection, tuberculosis may be the result of an ascending infection, the primary lesion being in the bladder, prostate or epididymis, or it may be primarily a kidney lesion of hematogenous origin, as in the case of a bone or joint tuberculosis. I am able to present to you one patient in whom a careful examination, including repeated cystoscopic examinations, reveals no other tuberculosis of the



urinary tract and one who gives a history of tuberculosis of the prostate and epididymis. Clinically, tuberculosis of the kidney often manifests itself first by the bladder symptoms. The first case presented to you was treated for a "cystitis" long before her kidney lesion was recognized, though the bladder shows no evidence of previous disease. Ultimately the clinical symptoms resolve themselves into those of an active tuberculosis; that is, an evening temperature with progressive loss of weight, and the local findings of an enlarged kidney, sensitive to pressure, with pus and tubercle bacilli in the urine. Pain is a variable finding, being oftentimes absent, and again of a sharp, severe character resembling the colic of renal calculus.

#### TRAUMATISM.

Kidney injuries form a group whose importance will be readily recognized. A very large proportion of the more serious type require immediate recognition and interference if we are to prevent a fatal termination. It will not be necessary to dwell upon the vascularity of the organ; we all recognize that. We are all aware of how profuse hemorrhage may be when rupture occurs. Let us separate a subgroup from the remainder, the gunshot wounds of the kidney. Surgical intervention in gunshot wounds of the abdomen in civil life is no longer a matter for discussion. Where a gunshot wound is so located, or the x-ray or other evidence is such that a bullet could have entered the abdomen, exploration is indicated.

The kidney is most frequently wounded by bullets passing into or through the abdomen, but may be reached by a bullet which enters from the side without entering the peritoneal cavity. There is usually profound shock, partly from hemorrhage, but probably also due to traumatism inflicted upon the nervous system, whose mechanism we are not familiar with. What we wish particularly to call attention to is the fact that we are unable to differentiate clinically between the symptoms of shock and those of hemorrhage, except when the latter comes on rather slowly, and even here the evidence may merely point to prolonged shock. It is, of course, clear that we may have profuse hemorrhage without external bleeding, even though the wound of entrance or exit be directly over the kidney. We meet with a very variable amount of damage done to the kidney by a bullet. A part of an end or of the free border may be cut off, or the bullet may pass through, leaving but a small track of injured substance. It may pass through the pedicle, cutting across blood vessels or ureter. A bullet entering the kidney is, however, very likely to produce an extensive rupture of the kidney, as though it had an explosive effect. To understand the nature of such extensive damage inflicted by a small missile we must look upon the kidney as a semi-liquid mass inclosed in a sack, the contents reacting as would a confined liquid to the blow; that is, the force of the blow is transmitted in all directions through the kidney as it would be in a liquid, thus rupturing its capsule extensively and tearing the kidney substance.

In actual practice the most common finding in injury to the kidney

is blood in the urine, which should always be sought for at once. The greatest danger is that of overlooking the injury by not making a sufficiently careful examination. In an exploratory laparotomy we may find no blood in the peritoneal cavity, because of the small opening in the peritoneum and fascia; or there may be a small amount, the source of which is not located. It is necessary to get a good clear view of the field to discover such a perforation. Where we are still in doubt we should examine the kidney itself, either by tearing through the peritoneum or by making a second incision through the lumbar region. Not a few kidney injuries have been overlooked because damage to other viscera was supposed to be sufficient to account for the symptoms, and the further search was stopped.

Injury aside from gunshot may follow blows either on the abdomen or in the lumbar region, or crushing, as between or under vehicles. All grades of injury are met with, from the slightest contusion to cases in which the kidney seems to be torn completely from its moorings and lies free in its fossa. The patient whom I present as typical of this lesion was kicked in the lumbar region by a horse and presented a tear of the lower pole of the kidney, with a complete separation of a small fragment of kidney substance. Clinically, we lack here that very positive incentive to radical work, the bullet wound.

In what cases is exploration called for and when are we justified in waiting for more definite signs? It is impossible to give a categorical answer to this query, and the same applies to injury to the other abdominal viscera. The history of a blow over the abdomen or kidney region, with blood in the urine, evidence of more than momentary shock, or hemorrhage; muscular rigidity which may be due to injury to the muscle itself; evidence of injury to other abdominal viscera, as blood in the stools or vomitus or localized pain and sensitiveness; all of these must be taken into consideration, their relative value must be weighed in the individual case and a decision must be arrived at at once. It is evident that here must come into play the judgment that is the result of study and experience and can not be conjured up by reading over the differential diagnosis, however clearly it may be written out.

#### PALPATION OF THE KIDNEY.

First, the patient must be placed in the proper position, and here is the first source of trouble. It will not do to simply place the patient on his back on the table and work the fingers down under his ribs. The kidney is a very deeply-placed organ, and absolute relaxation of the abdominal walls is essential to a successful examination. To make the patient comfortable place him on his back with his legs well drawn up, his knees resting together, his head and shoulders raised, but resting comfortably on pillows, his head flexed on his chest and his mouth open. His arms should rest by his sides. His mental state must not be that of fear that we are going to jab him suddenly or cause him pain. We show him how to breathe, so that he does not call into play his abdominal muscles; in other words, we must get the most complete relaxation of

every muscle of his body that we can. If he raises his head that action alone is enough to cause his abdominal muscles to contract. If he draws his legs up and holds them in position without resting them his abdominal muscles will not relax. If his arms are under his head his abdomen will be rendered tense. With the patient in the position that we have described, sit on the table or bed facing him. Place the tips of the fingers of one hand in the space between the twelfth rib and iliac crest; place the other hand rather flat on the abdomen, with the ends of the fingers coming about opposite to those of the other hand. No great pressure should be used with either hand, and it is particularly important that the tips of the fingers should not be jabbed into the patient, since this always produces an involuntary muscular contraction. The patient should now be made to take deep breaths by using his diaphragm during inspiration and by letting the air escape from his lungs without muscular action; that is, he should breathe normally, except that his diaphragm action should be rather more pronounced and his breathing should be through the open mouth rather than through the nose. Often in multiparae and occasionally in men with their abdominal walls relaxed the lower pole of the normal kidney can be palpated. The right kidney can more frequently be palpated than the left, being placed somewhat lower. If we are unable to palpate the organ the patient should be stood up, leaning forward against a firm body so as to get as much relaxation as possible; an abnormally movable kidney will often slip down to within reach of the fingers, which in the supine position would rest in its fossa. Occasionally even the erect position will not suffice to bring within reach a kidney that we know from previous examination to be freely movable, and the examination must be put off for another day; sometimes placing the patient on his opposite side will bring results, or we may possibly be justified in causing the patient to take some violent exercise to bring it within reach.

A movable kidney is usually best recognized as a smooth rounded body slipping out from the fingers' grasp. Its feel is so characteristic that we are not likely to mistake it for any other structure; we are more likely to err in the opposite direction. With a very movable kidney we may be able to grasp the entire organ, getting the fingers together above its upper pole or even drawing it down into the pelvis or to the other side of the median line. An enlarged kidney, if it reaches any considerable size, always comes within reach of the fingers. We must differentiate it from several other structures.

A projecting lobe of a deformed "corset" liver may occupy a position just anterior to the kidney. Its outline and its range of motion during respiration may closely simulate that of the kidney. Like the latter, it is retrocolic, and unless it can be felt to be continuous with the liver, we have no means of making a correct diagnosis. I have once seen such a lobe cut down upon under the mistaken diagnosis of movable kidney. The enlarged gall bladder can not be drawn downward—its lateral motion is limited by its fixed upper end around which it rotates. It is not as broad as a kidney, though it may be quite long enough to reach well below

the umbilicus. I do not, of course, refer to those curiosities of gall bladders holding pints of fluid. It may often be pushed up toward the renal fossa, but can not be made to stay there after withdrawing the pressure. Distending the colon with gas or air by means of an ordinary bicycle-tire pump will usually show the relative position of the two, but is not to be absolutely relied upon, as it may push a gall bladder up out of the way or actually lie above it.

The spleen is differentiated by its sharp anterior border—by its notches—by the effect of distention of the colon; by its outline, which is that of an ovoid with its long axis placed obliquely from beneath the costal arch downward and well over toward the median line, while the long axis of the kidney ovoid is almost parallel with that of the body. Tympany (colonie) may be made out below and *behind* the splenic tumor, not the renal tumor, the latter having its origin *back* of all the hollow viscera, and pushing them *forward* in its growth.

Pyloric tumor has been mistaken for a kidney, and recently in a patient of my colleague, Dr. Kanavel, I mistook a carcinoma of the colon for a kidney, the examination being limited to palpation. Muscular rigidity, localized about the region of the kidney, is often significant of an inflamed organ or a localized peritonitis secondary to an inflammatory process in the kidney.

The use of the *x*-rays as a means of determining the presence or absence of stones has become a procedure of absolute necessity. The results have constantly improved with improvement in apparatus and technique, until to-day we are able to hear reports of long series of cases in which the percentage of error becomes almost negligible.

The examination of the separated urines, by means of the various segregators and separate catheterization of the ureters, is often absolutely essential to exact diagnosis. The simplest means of separating the urines of the kidneys is by one of the various types of instruments so made as to form an artificial divide or water-shed in the bladder. The Harris segregator is the instrument most in use here, and consists of a double catheter which, after being passed, is so placed that one end lies on either side of the middle line; another section of the instrument is passed into the rectum or vagina, and by means of a spring is held up against the floor of the bladder, pushing up between the two catheters; each catheter thus gathers the urine of one ureter only. It is very satisfactory, but is subject to some errors which lessen its value. Aside from avoidable errors due to careless placing, blocking of the small catheter openings, etc., abnormal position of the ureteral openings, asymmetry of the bladder, thickened bladder walls, etc., must be kept in mind as possible sources of error.

Catheterization of the ureters gives us a method of gathering the urines that approaches exactness. We should hesitate to perform this operation through an infected bladder, lest we cause an ascending infection.

Segregation and ureteral catheterization have enabled us to dispose absolutely of exploratory cutting down upon the opposite kidney before



doing a nephrectomy; they have given us a means of obtaining an exact knowledge of the kidneys otherwise absolutely unattainable. Let me remind you that tuberculosis of the kidney is unilateral in at least 50 per cent. of the cases and that blood may appear in the urine before a malignant tumor has reached a size to make it palpable, and that in both cases the examination of the separated urines gives us the most positive information as to which organ is involved.

Cystoscopic examination alone may be of the greatest value without catheterization. The relative condition of the two meati can be studied; after considerable experience is acquired the eddies caused by the entrance of the jets of urine can be recognized, especially if the patient be given indigo carmine beforehand to color the urine, or if the urine contain blood.

Marked hyperemia or ulceration can at times be detected about the ureteral meatus of a tubercular kidney. The relative functioning power of the two kidneys may be estimated:

First.—By estimating the urea content of the separated urines.

Second.—By finding the relative rate of sugar excretion after a subcutaneous injection of phloridzin.

Third.—By observing the relative rate of increase in secretion after giving large quantities of water.

Cryoscopy and the determination of the electrical conductivity of the blood are at present very widely discussed subjects. When a nephrectomy is indicated by the local condition the question at once arises whether the opposite kidney is capable of carrying on the work of both. It has been found that with the excretory power of the kidney normal the blood maintains a constant freezing point; that is, what chemists speak of as the "molecular concentration" of the blood is so constant that its freezing point normally varies less than  $1/100^{\circ}\text{C}$ . This is dependent upon a normally functioning kidney, which by more or less rapid osmosis maintains the blood in its normal state. Incompetent kidneys manifest themselves by an increased concentration of the blood with a lowering of its freezing point. It is maintained by men who have given considerable study to the matter that cryoscopy affords us so positive a method of estimating the functioning power of the kidneys that it must be considered as one of the essential parts of the study of cases.

It has appeared to us that the difficulty of technic and time required could hardly be given as an excuse for not using a method that chemists are agreed upon as being one of minute exactness; that if as clinicians we are unable to devote the time to it, or to acquire the necessary skill, we must call in the laboratory workers to our assistance. Electrical conductivity is dependent upon the same principle of molecular concentration of fluids as is cryoscopy, and what has been said of the latter applies to both.

Finally, I wish to call your attention to these specimens, being partly kidneys removed at our clinic and partly specimens loaned by Professor Zeit.

The first is an example of acute suppurative nephritis of hematogenous origin. Observe: Cortex studded with minute abscesses; the pyramids intact. The primary changes are necessarily in the blood vessels of the cortex, which microscopically would be found to be loaded with pus cocci.

The changes here observed are the result of a bacteremia, and the condition is, therefore, necessarily bilateral. We may have emboli given off from a cardiac valve, but if so there will either be simple anemic infarcts or, if an acute endocarditis is present, the kidney lesion is a terminal one of no surgical importance. Compare this with specimen No. 2. This kidney presents a suppurative pyelitis, with extensive destruction of the medulla and cortex. This is a late effect of ascending infection; had the lesion been recognized early as in the other case of suppurative nephritis which I showed you, and drained early, the kidney may possibly have been saved. Remember that in neither of these cases of ascending nephritis was there any positive evidence of an infection of the lower urinary tract. In one there was a floating kidney with probably torsion of the ureter. In the other there were no definite findings.

Compare now the two specimens, one showing a tuberculosis with extensive destruction of the kidney, the other a case of pyonephrosis due to stone with equally extensive destruction. Both have large cavities; both have the cavities filled, some with pus, some with cheesy material. Compare the empty cavities of the two kidneys where we have washed out the contents: the tubercular cavities are lined with a shreddy ragged material, the pus cavities are smooth and clean. Observe in the specimen showing the hypernephroma that a pyelonephritis exists in which extension into the tubules of the pyramids can be made out. Thus this specimen shows that the bacteria acted upon the kidney from the pelvic side, though they were probably excreted by the kidney and did not reach the bladder.

#### SURGICAL TREATMENT.

Except for the removal of large tumors, operative attack is directed through an incision in the lumbar region, which begins above close to the junction of the twelfth rib and outer border of the thick mass of lumbar muscles, and is continued downward and forward toward and in front of the anterior superior spine of the ilium, of any desired length. Muscles and fascia fibers are quickly separated, with little sharp dissection, down to the fatty capsule. A number of details in the technic employed serve to facilitate matters materially.

#### ANESTHESIA.

We employ gas-ether anesthesia almost exclusively. Preliminary gas anesthesia reduces by nearly 50 per cent. the dose of ether required, and ether has not been found to be more depressing to the kidneys when involved in disease than chloroform. For opening a perinephritic abscess gas alone is sufficient.

## POSITION OF PATIENT.

The patient should lie upon the side opposite that to be operated upon, leaning forward, supported by sand-bags, with a large sand-bag under the loin.

## NEPHROPEXY.

The essential factor in the technic is to bring up Gerota's capsule, drawing it out of the incision until the kidney is brought up with it to the level of the fascia. The forceps grasping the capsule must take large, broad bites or they will tear through. The capsule is sutured into the fascia.

## NEPHROTOMY.

The kidney should be held in the grasp of the fingers, preferably by partially delivering it; the capsule and cortex are nicked with a scalpel and the finger is then pushed through the kidney substance, as may be indicated. It is rarely desirable to incise the kidney substance with a scalpel. The finger can readily be pushed into the kidney pelvis, and hemorrhage will be much less severe than if a scalpel were used.

## NEPHRECTOMY.

The incision should be long enough to give free access to the kidney and ureter, extending well down in front of the ilium. The anatomical closure of the parts may be so perfect that hernia is not to be feared. The next step is to separate kidney and ureter from peritoneum. When, after prolonged suppuration, this cannot be readily done, the safety of the patient may require that the kidney capsule be incised and its anterior portion be dissected off with the peritoneum, leaving it behind. The ureter should be removed with the kidney in tuberculosis, as it is commonly involved. This can be done readily down to within a short distance of the bladder.

## CONTROL OF HEMORRHAGE.

In nephrotomy it is well to have the kidney within the grasp of the fingers before making the incision. Comparatively little bleeding will follow where the finger is used as suggested here. However profuse, it can be instantly controlled by compressing it laterally between the fingers. Packing with gauze accomplishes the same purpose, though not as quickly. In nephrectomy the pedicle is grasped with a heavy clamp, or ligated before removal of the kidney, but in the latter case the pedicle should be grasped with a pair of forceps distal to the ligature before cutting through it, to insure perfect control.

CASE OF SUPPURATIVE WOUNDS FOLLOWING  
ABDOMINAL SECTION.\*

THOMAS J. WATKINS, M.D.

CHICAGO.

I beg leave to outline the treatment I employ for suppuration in postoperative abdominal wounds and which I believe is consistent with modern pathology and surgical physiology. I have nothing new to offer, but my care of these wounds varies much from the treatment generally used by others. Hence, my desire to bring it before you for discussion.

The principles of the treatment of these wounds are much the same as the treatment of suppurative wounds in other parts of the body. The more one studies the surgical physiology of wound repair, the less treatment he will usually employ. Aseptic methods, less drainage and interval operations have lessened very much the number of suppurative abdominal wounds. In fact, one should never get a suppurative wound unless the case is septic at the time of operation. In the septic cases much can be done to avoid suppuration in the wound, in many of the drainage cases, by bringing the drainage out at a point distant from the wound.

In pelvic surgery in the female, the drainage can usually be established through the vaginal canal. In large abdominal incisions, one can at times use a puncture wound to one side with much advantage and thus make complete closure of the incised abdominal wound.

## OUTLINE OF TREATMENT.

## a. Prophylaxis.

1. Use of rigid surgical cleanliness.
2. Interval operation for septic diseases when practicable.
3. Avoid drainage in the wound in the absence of positive indications.

## b. Curative.

1. Use of wet dressings as long as the wound looks angry; that is, until the acute redness, induration and necrotic tissue disappear.
2. The edges of the wound are drawn together with sterile adhesive plaster when the wet dressings are removed. Balsam of Peru is used to keep the dressings from sticking and, in case of a sinus, to prevent decomposition of secretions.

The wet dressing is used to prevent sealing of the wound by coagulation of the serum which exudes from the wound. If the amount of the discharge is small and if a dry dressing is used, the serum will coagulate and seal up the wound as effectively as could be done with collodion. The wet dressing should be covered with a non-absorbable dressing to prevent evaporation. The dressing is wet with normal saline, sterile water or a solution of boric acid. No strong germicidal solutions are used for reasons given below. The dressings are changed one to three times daily,

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\*Read before the Chicago Medical Society, May 29, 1907. For discussion see Page



depending upon the amount of discharge. They are not wet except when changed, as they will not get dry when properly covered. The wet dressings may be omitted when the amount of discharge is large, as a profuse discharge will of itself keep the dressings sufficiently wet.

The above treatment is all that I have used for those wounds for the last two or three years or more, and they have healed much more quickly and with less discomfort to the patient than when they were more vigorously treated.

In drainage cases the above treatment is used as soon as the drain is removed—no more drainage is inserted. In cases of fistulae and sinuses no effort is made to keep them open at the top. The discharge is generally sufficient to keep them open. They occasionally close temporarily for one or two days and then reopen without any untoward effects, in my experience. These sinuses are not medicated as they are always due to some well defined cause which can not be removed by medicines.

Many things are done in medicine without reason as a result of custom. Good examples of this fact are procedures which are generally employed in the treatment of suppurative abdominal incisions, namely:

1. Free removal of sutures and opening up of the wound.
2. Probing of the wound.
3. Manipulation of the wound.
4. Irrigation of the wound.
5. Use of tubing and gauze in the wound.
6. Use of germicides and caustics in the wound.

The action of suppuration in wounds closed with continuous catgut sutures in layers where the treatment was carried on without the removal of the sutures is convincing that the removal of sutures in case of suppuration is not so important as formerly believed. In fact, these cases get well as quickly where the catgut sutures are used and not removed as do the cases that are closed with interrupted sutures which are removed in part to facilitate drainage. Less separation of the wound occurs in the former than in the latter, other things being equal. All of the discharge will escape through a comparatively small opening if the dressings are kept wet and if gravity is favored by the location of the wound and the position of the patient. All of the abdominal wounds in my care are closed with layers of continuous catgut sutures, unless it seems certain that suppuration will take place. In the latter case the wound is reinforced by a few figure-of-eight silkworm gut sutures in the fascia. In case of suppuration one or, at most, two, of these silkworm gut sutures are removed, but the wound is not spread open.

It is difficult to see why surgeons probe these wounds, as the probing is apt to extend the infection, injures the tissues, hurts the patient, and the treatment is not modified by the depth or direction of the wound. Manipulation of the wound may force out some discharge that would escape, tends to disseminate and injure the tissues and causes pain.

Irrigation of these wounds is the most damaging, most time-consuming and the most generally employed of any of these meddlesome procedures. The injury consists chiefly in the use of antiseptic solutions in

the wound. Experiments show that these antiseptic solutions damage the tissues in non-infected wounds and produce much more injury to infected wounds. Some injury is also done by the mechanical force to the irrigation stream. The wound repair is a very delicate network formation which is easily washed away, especially by a strong antiseptic solution. If the wound drains spontaneously why irrigate it? If the drainage is not spontaneous the surgeon should see to it that such drainage is established. One may contend that it is at times necessary to employ rubber tubes to get good spontaneous drainage. I have not seen in the last two years a case where it was necessary to keep in rubber tube drainage. The rubber tube easily produces necrosis of the tissue which it presses on, quickly becomes offensive and mechanically interferes with the wound repair.

Gauze drains which are placed in these wounds after they suppurate are more apt to interfere with than to facilitate drainage. To be kept clean it has to be frequently replaced, and the replacement causes much traumatism of the wound.

If one would stop to think it would be difficult to realize how he can use strong antiseptics and caustics in the sinuses of these wounds, or see how he can dilate, pack and scrape them when he knows that they are generally due to an infected ligature or suture and will disappear when the suture absorbs or is removed. He also knows that they are at times caused by the presence of necrotic tissue and will heal when the necrotic tissue disappears. Many of these wounds heal slowly because the reparative process is handicapped by too much treatment. It has not been found necessary to modify this treatment even in cases complicated with intestinal fistulæ.

These wounds are often much injured by carelessness as regards cleanliness. The opinion is quite general that aseptic care is not needed in the dressing of an infected wound, and in this way a mixed infection frequently results, much to the injury of the patient, and the mixed may be more serious than the original infection.

Meddlesome and painful treatment of these wounds interferes with the cheerful mental state of the patient that is essential to the free taking of food, rest and sleep, requisites to a healthful recovery.

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## ANATOMY OF THE SUBPHRENIC SPACE, WITH EXHIBITION OF ANATOMICAL SPECIMENS.\*

H. O. WHITE, M.D.

Adjunct Professor of Anatomy in the Medical and Dental Departments of the University of Illinois.

CHICAGO.

In spite of the voluminous literature and the most careful observations of pathological conditions known as subphrenic abscess published in the medical journals during the last few years, there is, I regret to say, very little indeed, written or said on the anatomy of the so-called subphrenic space.

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\* Read before the West Side Branch of the Chicago Medical Society, April 18, 1907.

In 1894 K. Maydl of Vienna was, to my knowledge, the first one to describe and explain anatomically the possibilities of pus collecting in the subphrenic space from different sources and organs, abdominal as well as thoracic, quite remotely situated from that space. It is only through a correct anatomical knowledge of the space and its boundaries, the organs contained therein, their relations to each other, as well as their peritoneal coverings, that a proper diagnosis so essential to successful surgical treatment can be arrived at. In 1896 Carl Beck of New York, in a very able article on Subphrenic Abscess in the *Medical Record* of February, 15, also contributed to the topography of the subphrenic space. By this term we are to understand all that uppermost part of the abdominal cavity below the dome of the diaphragm, having for its lower limitation the transverse mesocolon. Removing, then, all the abdominal viscera situated above the transverse mesocolon, we find a hemispherical cavity with its base downward, flattened antero-posteriorly and concave superiorly, and to a certain extent laterally. Now let it be understood at the outset, and I want to put myself on record, that, anatomically speaking, there is no such thing as a subphrenic space. It is only when the abdominal organs situated between the transverse mesocolon below and the under surface of the diaphragm above are displaced by some pathological process in the organs *per se*, in the tissues retaining or helping to retain the organs in their normal position, or in the structures forming the boundaries of the subphrenic hemisphere above mentioned, that a subphrenic space is created. This is a fact that will not bear any dispute from an anatomical standpoint. Furthermore, it is positively established in the minds of the whole profession that, once the abdominal as well as the thoracic and pelvic organs are not pathologically hindered or disturbed from their normal position, their relations to each other remain very constant indeed, and the superior surfaces of the viscera situated immediately below the under surface of the diaphragm, particularly the liver, fit pretty accurately to the inferior surface of that muscle, so much so that no appreciable space between the opposing surfaces can be demonstrated. I, therefore, deem it proper to consider the upper part of the abdominal cavity from the diaphragm above to the transverse mesocolon below as the subphrenic cavity and a pathological disturbance found immediately within the boundaries of that cavity is justly entitled to the term subphrenic, unless the process is limited to a particular viscus only. The act of respiration consists of two opposite movements, inspiration and expiration, which is the principal action of the diaphragm, descending in the former and ascending in the latter. It follows that the organs situated immediately below the diaphragm and in consequence thereof all the abdominal viscera perform the same movements, and hence become displaced in a vertical direction with each respiration.

Again, almost the whole subphrenic cavity is composed principally of muscular tissue and consequently has an aptitude of contraction and relaxation to a very considerable degree, thereby altering the diameters of the cavity in all directions, particularly in the transverse and antero-posterior diameters, and as the alternate relaxations and contractions of

the muscular boundaries act also in accord with the movements of the diaphragm, hence the viscera are also displaced in these directions. In other words, there is a constant gliding movement, so to speak, going on between the internal lining of the walls of the subphrenic cavity and the adjacent surfaces of the organs contained therein. The logical deduction, therefore, to be drawn from these statements is that pathological products depositing and collecting between these surfaces create a subphrenic space. With a passing apology for this somewhat prolonged introduction, I shall now proceed to describe the anatomy of the subphrenic cavity. Owing to the large size of the cavity, and in order to localize more correctly the positions of the various organs contained within it, the subphrenic cavity proper is artificially subdivided into distinct compartments by one horizontal line drawn around the body and two perpendicular lines drawn upwards on its anterior wall. From these lines imaginary planes are supposed to be continued backwards to the posterior wall of the cavity. The horizontal line is also known as the subcostal line, because it is drawn immediately below the most dependent part of the thoracic framework. The tenth costal cartilage, however, is usually selected in drawing this line, because it is very apparent from the front, and is, as a rule, stationary—i. e., fixed. While the eleventh, being a floating rib, is very movable and variable in length. Hence the subcostal line will often vary in position and consequently not correspond to the subcostal plane, which marks the inferior boundary of the subphrenic cavity and falls within the region of the transverse colon and mesocolon. By the two perpendicular lines and their respective planes, the cavity is divided into three compartments—a central one, known as the epigastric region or the epigastrium, and two lateral regions designated from their positions as the right and left hypochondriac region, or hypochondrium.

The superior, lateral, posterior and, to a great extent, the anterior boundaries of the subphrenic cavity are furnished by the diaphragm proper. It should not, however, be forgotten that the superior boundary of the subphrenic cavity is unevenly concavo-convex. The convexity extending into the epigastric region from the position of the heart above the diaphragm and the concavities in both hypochondriac regions, and more so in the right than in the left on account of the liver being situated in the right dome of the subphrenic cavity, and unless some pathological condition changes the shape of the diaphragm it otherwise remains pretty constant. I base this statement upon the examination of a considerable number of cadavers and found it to apply so generally that I advance it here as a condition most frequently found after death and as, in all probability, giving a near approximation to the conditions present during life. It must, however, be admitted that in the female, as a result of tight lacing, the diaphragm is often changed in shape as well as in position; but this condition is associated with displacement of the organs below the diaphragm, particularly in its immediate neighborhood, and can not, therefore, be looked upon as normal. As to the viscera situated in the various artificially subdivided regions of the subphrenic cavity, the following are found: In the epigastrium almost the whole of the left



lobe of the liver, the quadrate, caudate and Spigelian lobes of the same organ, the left longitudinal half of the gall bladder, the pylorus with part of the stomach adjacent to it, the duodenum, except a part of its third portion, and middle two-fourths of the transverse colon, head and body of the pancreas, upper and inner parts of both kidneys together with their pelves and ureters, the upper and inner parts of both suprarenal bodies as well as the spleen. The right hypochondriac region contains the right lobe of the liver extending to the falciform or broad ligament, the right longitudinal half of the gall bladder, upper and outer parts of right kidney together with the same parts of the right suprarenal body and the hepatic flexure of the transverse colon. In the left hypochondrium are normally to be found the larger portion of the left lobe of the liver, the spleen, tail of pancreas, upper and outer parts of left kidney and its suprarenal body, fundus of the stomach and the splenic flexure of the colon. The peritoneum or tunica serosa is the serous membrane which lines the subphrenic as well as the whole abdominal cavity and invests most of the viscera to a greater or less degree. Its arrangement and relations to the contents is very complicated indeed.

Nevertheless, it will be necessary to give here a general account of the disposition of the membrane. Starting to trace the peritoneum in front, we find that it lines the internal surface of the anterior wall of the cavity, and is continued upwards to the under surface of the diaphragm, covering its greater portion. It is then reflected upwards on to the upper surface of the liver, over the stomach and the organs below, clothing them all, as it were. When traced laterally from the anterior wall, it will be found to line the sides of the cavity, and proceeding backwards also clothe the posterior wall of the cavity and the viscera lying upon it. Besides investing partially or completely all the organs in the subphrenic cavity, it becomes also reflected in certain situations from one organ to another, and from the organs to the walls of the cavity, thus forming processes which receive special names according to their location. And their function is to hold the viscera in position and to transmit vessels and nerves between their layers.

# ILLINOIS MEDICAL JOURNAL

THE OFFICIAL ORGAN OF THE ILLINOIS STATE MEDICAL SOCIETY.

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SEPTEMBER, 1907.

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## AN ILLINOIS BRANCH OF THE PUBLIC HEALTH DEFENSE LEAGUE.

We take pleasure in calling the attention of our members to what seems to us a movement which deserves the support not only of the medical profession, but of every right-thinking person in the state. The organization of this league is of recent occurrence and yet great progress has been made in increasing the sympathy and active cooperation of some of the best minds in the country. A national organization has been completed and a state league in New York, and it is hoped to have the state organization of Illinois in readiness for the election of the officers in October. The headquarters in Chicago will be thoroughly organized and equipped to carry on this vitally important work of assisting the constituted authorities in conserving the public health. Hitherto the medical profession, single handed and alone, has attempted to combat the many evils that are constantly attacking the health of the nation. This league will also endeavor to enlist the sympathy and active support of the laity, believing that the influence of an educated public opinion, fully alive to the dangers that beset the public health and organized to protect it, will be a valuable ally to the physicians along this line. By securing a large and powerful membership throughout the country, the league hopes to carry on an extensive educational propaganda and exert a tre-

mendous influence in all proposed legislation concerning public health matters.

The objects of this league, briefly outlined, are as follows:

1. To combat all forms of quackery and charlatanism.
2. To prevent food adulteration and drug substitution.
3. To prevent the sale of narcotics and alcohol disguised as patent medicine.
4. To prevent the circulation of indecent medical advertisements.
5. To advocate the establishment of a National Department of Health.
6. To carry on an educational campaign for the spreading of accurate knowledge concerning the public health and the inculcating of higher ideals.
7. To protect the public health by assisting the constituted authorities in the enforcement of existing laws and by urging the enactment of uniform legislation in all the states on matters relating thereto.
8. To cooperate with other societies interested in any public health problem and ultimately to effect a plan of union or cooperation of all organizations interested in the public health.

Representative physicians have already agreed to take an active part in directing the work of the Illinois branch, and it is to be hoped that every physician in Illinois recognizing the importance of the movement will feel it incumbent upon himself to lend the support of his membership to the league. Ladies representing the league expect to visit the cities of Illinois during September.

For any information address F. Elizabeth Crowell, Hull House, Chicago.

## THE MUTUAL LIFE OF NEW YORK RAISES THE SCALE OF PRICES TO THE OLD STANDARD.

Undoubtedly as a result of the campaign made by the organized profession of the United States at least one old line company, which had announced a reduction in its compensation to examiners, has seen the error of its way and decided to return to the standard prevailing several years ago. This is announced to its examiners in a circular letter No. 88, which was mailed to the examiners of the Mutual Life Insurance Company of New York, July 23, 1907. Because of the importance of this concession to the demands of the organized profession we give place to the entire letter and congratulate both the company and the medical world on this advancement of fraternal comity. If anything were needed to show the value of organization this would be sufficient, and certainly it is one of the proofs that in union there is strength and without concerted action nothing can be accomplished. There are many members of the profession who thought that nothing would be conceded by the wealthy corporate life insurance companies, but they must be convinced of the power of organization by this letter.

The letter is as follows:

NEW YORK, July 23, 1907.

Circular No. 88.

*Dear Doctor:*—I am glad to announce to the Medical Examiner of the Company that on and after Aug. 1, 1907, the company will pay a fee of \$5 for each completed examination for new insurance, irrespective of the amount of insurance applied for.

This has been rendered possible by rigid economy in other directions, whereby a saving in the expense of obtaining new business has been effected of sufficient size to warrant this step.

All extra allowances for mileage, obtaining additional information, urine, etc., will be abolished, beginning August 1. The fee for a microscopical examination of the urine will be \$5, as heretofore, but this will only be made when directly called for by the company.

The fee for a certificate of health for the restoration of a lapsed policy will be \$2 unless a full examination is called for, in which case it will be \$5.

Very truly yours,

BANDRETH SYMONDS, M.D., *Medical Director.*

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### PHYSICIAN A CANDIDATE FOR LIEUTENANT GOVERNOR.

Dr. George A. Zellar, of Peoria, announces that he is seriously considering making the race for Lieutenant Governor on the Republican ticket in 1908.

Among his qualifications, the doctor believes that during his incumbency as a superintendent of the Bartonville Asylum he has brought about many improvements which have attracted attention all over the United States, and in the more important office of Lieutenant Governor, should he be elected, he would be able to do them (the insane) much more good, as he would be the presiding officer of the Senate and a member of the State Cabinet. The Honorable Lawrence Y. Sherman, now occupying the office of Lieutenant Governor, would probably consider the incurable insane, whose management Dr. Zellar has had for the past four or five years, as easy as Sunday school scholars along about Christmas time compared with the management of the cliques and committees of the State Senate of Illinois.

Whether Dr. Zellar's studies in insanity have given him a key to unlock the political door of this state remains to be seen. He claims he has thrown away the keys at the Bartonville Asylum.

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### PAPERS READ AT THE STATE MEETING ON MEDICOLEGAL TOPICS.

In this issue of THE JOURNAL all papers read at the last meeting of the State Society on medicolegal topics will be found. As before mentioned in THE JOURNAL, the Medicolegal Committee was quite successful in securing interesting papers, and we believe that this is historically noteworthy as being the first effort in any state to bring this important matter to the front. The success of the Medicolegal Committee of the Chicago society along this line has been so great that it has attracted attention all over the country, and this success promises to be repeated in the larger field of the state of Illinois. Undoubtedly this matter



should gradually spread from state to state until finally a national committee upon this subject will have charge of the matter and very soon the blackmailing lawsuit against medical men will be heard of no longer. We hope that all our members will read the interesting series of papers in this issue of THE JOURNAL.

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### Correspondence

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#### PUBLICATION OF MINUTES OF MEDICAL SOCIETIES' MEETINGS IN THE DAILY PRESS.

FAIRFIELD, ILL., July 26, 1907.

*To the Editor:*

In answer to a marked clipping from one of our county papers I will say that we are in the habit of giving our county papers a brief account of each meeting for the reason that several physicians in the county represent our society as a trust or combine. The publication of our transactions in the county papers effectively disposes of such contention and has a good effect on the people, who observe that our meetings are held solely for the good of the profession and the public.

Respectfully, J. P. WALTERS, *Secretary*.

## COUNTY AND DISTRICT SOCIETIES

### ADAMS COUNTY.

The Adams County Medical Society held its regular monthly meeting, July 8, in the Elks' Club Rooms, Quincy, the society being called to order by the president. The doctors present were: Rice, Nickerson, Christie, Knox, Meyer, Spence, Grimes, Schullian, Mercer, Williams, W. W. and J. G., Brenner, Bates, Robbins, Ericson, Nichols and Wells. Dr. Robbins presented a case of fracture of the small portion of the femur in a lady 62 years of age, which was treated with almost perfect results by use of the plaster dressing. There was neither shortening of the leg nor eversion of the foot. This case and similar ones, under like treatment, were discussed by Drs. Christie and Montgomery. Dr. Montgomery presented a paper on Food Inspection as Applied to Milk and Meat, which was admirable and on account of its timeliness was ordered published in the city press. Dr. Nickerson presented a resolution and letter to the ordinance committee of the City Council urging immediate action by the presentation of an ordinance providing for the inspection of milk and meats in our city. Luncheon was enjoyed by the members at Hotel Newcomb.

#### *August Meeting.*

The August, or "Mark Twain" meeting of the Adams County Medical Society took the form of an excursion and a joint meeting with the Hannibal and Marion County, Missouri, Societies. A steamboat was secured by members of the society and the expenses incident to the meeting were thus provided by the money which they subscribed. Invitations were sent to the leading practitioners of Pike County, Illinois, Marion and Ralls counties, Missouri, and also to the leading men in this part of Illinois and the territory adjacent to Hannibal.

Physicians and their wives, and nurses to the number of one hundred, left the wharf at Quincy on the steamer "Uncle Sam" at 11:30 August 12, on one of the most delightful and most pleasant days the month of August ever gives. The regular routine business meeting of the society was held while steaming down the river. Hannibal was reached at 1 o'clock and the company marched to the "Mark Twain" Hotel, where luncheon was served to them and to about seventy-five physicians and their wives from Hannibal and Eastern Missouri. After the luncheon came a most excellent scientific program, and then the combined company boarded the boat and went down the river for a visit to the famous "Mark Twain" cave, known in legend and story to folk the country over. The return trip to Quincy was even more enjoyable, the delicious coolness, the glorious colorings of the western sky as the sun sank below the horizon, the fleeting, shimmering shadows on wave and shore, spoke to and touched the deeper hearts of the company with an exquisite comfort and peace.

This "Mark Twain" meeting was the most successful and enjoyable ever held. Everyone was delighted and the spirit of comradeship and comity, most desirable among all men, but especially between those in the noble profession of medicine, was genuine and pronounced. The thanks of the Adams County Medical Society are hereby extended to all, especially to the profession and their wives of Hannibal, for their efforts in making our excursion and meeting such a great success.

There were present on this occasion physicians and their wives from Hannibal, Rensselaer, Withers Mills, Ilasco, New London, Monroe City, Louisiana, in the State of Missouri; from Keokuk, Iowa; from Jacksonville, Mt. Ster-

ling, Clayton, Golden, Camp Point, Loraine, Barry, Pittsfield, Griggsville, New Canton, Kingston, Marcelline, Mt. Carmel, Burton Coatsburg and Quincy, in the State of Illinois. Letters of regret were read from Mark Twain, Doctors Percy, Black, Bacon, Kreider and others.

Dr. Alfred C. Croftan, Chicago, read a paper on The Practical Management of Diabetic Cases. In response to an invitation to present some subject pertaining to the domain of internal medicine, he selected a chapter from the metabolic disorders for several reasons. In the first place, because disorders of metabolism are most remote from surgery and hence especially vindicate their claims to be a part of internal medicine; and second, because metabolic disorders offer the best illustration of what can be accomplished when the laboratory is brought to the bedside; third, because metabolic disorders when properly studied offer the most grateful opportunity for exact therapeutics. In view of the fact that the present audience is one of practicing physicians, the chief consideration will be laid upon that aspect of the large study that concerns itself with practical therapeutics, especially as within the narrow time limits properly set for the reading of a paper of this kind, only a small portion of the vast material can be properly discussed. By way of introduction and in order to illustrate the beautiful accuracy that can be followed in studying a case of diabetes, Dr. Croftan explained the conception of caloric values and the methods of calorimetric determinations in relation to the metabolism of diabetic subjects. After showing how a diabetic subject, notwithstanding that it may ingest more than the calculated caloric requirement in 24 hours, may, nevertheless, emaciate and consume its own tissues, owing to the lack of many calories in the urinary sugar. After showing how it can be calculated what proportion of the consumed tissues of the patient is furnished by fats and which by albumins, the essayist went on to say that the question of feeding a diabetic would be a very simple one on the basis of such a calculation, if it were true that no diabetic could tolerate any carbohydrate food. As a matter of fact, only a small minority of cases of diabetes are unable to utilize any of the carbohydrates of the food. Most of them, in fact, not only can tolerate these carbohydrates, but fare infinitely better if they are supplied. It is a matter of the greatest importance, of course, to determine how much carbohydrate pabulum can be ingested with safety and to remain strictly within these limits. This determination is performed by estimating what is called the boundary of tolerance or the boundary of assimilation. The technique of such a determination was then described at some length and the differentiation of diabetes into several clinical types attempted on the basis of tolerance determinations. The routine feeding of diabetics by the withdrawal of carbohydrate food for indefinite periods of time was then condemned chiefly on the following grounds: (1) Because it is unnecessarily severe and very difficult to carry out in practice, inasmuch as most patients will rebel against so orthodox a régime. (2) Because it is unscientific for the reason that it fails in the foremost essential of any method of feeding, namely, to maintain adequate nutrition and to supply sufficient caloric values. (3) Because it is inartistic and inelegant and violates all the tenets of the art of dietetics, inasmuch as it forces the greatest monotony in feeding and deprives the patient of the psychic stimulus of appetite and enjoyment of food that is so essential for proper assimilation. (4) Because it is often directly dangerous on account of the danger of acidosis that it engenders. Dr. Croftan called attention to the occurrence of acetoneuria and general acidosis in normal subjects who are placed upon a carbohydrate-free diet for any length of time, and showed how the supply of even small quantities of carbohydrate food in most cases promptly did away with the acetone excretion. This led to a further discussion of the danger of too much albuminous pabulum, for, as the essayist showed, too much meat not only favors acidosis for various chemical reasons, but also reduces the tolerance for carbohydrates, albu-

mins; in fact, constituting in themselves very prolific sources of urinary sugar in diabetic subjects. Finally, the use and abuse of diabetic breads, the technic and the indications for the so-called "Oatmeal Cure," and the employment, indications and counterindications for various drugs, chief among the latter arsenic, iodid of potash, opiates, salicylates, alkalies, and organ preparations, were discussed. In conclusion, Dr. Croftan briefly recapitulated and summarized everything that had been said and ventured the statement that more cases of diabetes died from starvation on account of the injudicious dieting than from the disease proper.

Dr. Frank Parsons Norbury, alienist and neurologist, of Jacksonville, presented a paper on The Indications for, and the Technique of the Rest Treatment, and illustrated and emphasized his points by a number of case reports, the charts accompanying which contained data as to sleep, weight, and mental symptoms arranged in an original manner following the usual way of recording the temperature curve. Dr. Norbury is a frequent visitor to the Adams County Society and his address was much enjoyed.

The paper by Dr. Ernest Zimmermann, Quincy, on Perityphlitis Simulating Appendiceal Abscess and Ileocecal Tuberculosis, illustrated by an operative case in his clinic, was postponed on account of time until the next meeting. This was an unique case and was successfully treated in a surgical way.

C. A. WELLS, Secretary.

## COOK COUNTY.

### CHICAGO MEDICAL SOCIETY.

*Regular Meeting, May 15, 1907.*

Regular meeting was held May 15, 1907, with the President, Dr. Geo. W. Webster, in the Chair. Dr. Geo. Thos. Palmer read a paper on Hospital Abuses and the Remedy. Dr. C. S. Bacon discussed The Relation of Medical Charities in the Teaching of Clinical Obstetrics. Dr. T. J. Renn read a paper on The Dispensary Abuse. The discussion on these papers was opened by Dr. C. O. Young, and continued by Drs. Denslow Lewis, E. H. Ochsner, E. H. Lackner, J. M. Dodson, Mr. McCormack, Drs. E. A. Fischkin, E. Kenyon, and closed by the essayists.

#### DISCUSSION ON THE PAPERS OF DRs. PALMER, BACON AND RENN.

Dr. C. O. Young:—I served on the staff of one of our largest denominational institutions for several years without receiving any remuneration. I once tried to collect a fee of \$10.00 from a well-to-do merchant coming from a Western city, and he got his pastor to write a letter to the president of the institution, a divine, and he conferred with me and then informed the pastor that his parishioner did not have to pay the bill. I was repeatedly prevented by the directors of the institution from collecting surgical fees from private patients whom I placed in the hospital. You may ask why I continued to serve on the staff. My answer would be the same as Jacob's when he served Laban seven years for nothing in order to get Rachel. I hoped to get my Rachel—by promotion; but after the seven years had elapsed I did not get Rachel. Another member of the staff got her.

I moved south and was instrumental in starting a hospital on the south side. Let me tell you how we carry on the charity work there. At the Washington Park Hospital, a quasi-public hospital, the charity work is done by an entirely separate organization; in fact, two Ladies' Aid Societies. When a charity patient applies for admission to the hospital he is referred to one of these organizations, whose committees make a personal investigation, and if the patient is worthy the staff is supposed to render service free of charge. The aid societies are working purely for charity and not for gain. A case came up to-day where a family in South Chicago wanted to bring a tubercular hip case into the hospital. They were referred to the charity organizations, who found that the family



owned a house that was said to have a big mortgage on it, but the people refused an investigation. If some such organization that has no special interest in the hospital would be willing to do the charity work much good could be done.

Dr. Denslow Lewis:—Medical practitioners are primarily professional men and not business men, but they must make a livelihood and most of them must live on what they earn in their profession. Of course, we do not believe in trades unions, but we must live. I do not pretend to answer the problem that has been advanced, but I will make a statement regarding actual conditions as I have seen them in Chicago and as I have known them in my own experience. Twenty-one years ago, when it became possible for me to be connected with the County Hospital, I served gladly and I continued in that service for sixteen years, devoting myself faithfully to the work, operating on an average three times a week and holding one clinic a week. During that time I often drove ten miles, at inopportune times, sometimes in the night, to attend a pauper. I received absolutely no compensation for that work, and yet I am free to say that I did not do it for nothing. I did it for an object. The object was that I should become known to some extent as a surgeon. That object was accomplished, and I felt I was amply repaid for my sixteen years of service. So, with Dr. Bacon, I am free to say that if he had not had those pauper cases he would not now be known as an authority on obstetrics. It may therefore be said that when we go on the staff of a charity hospital we receive pay, not in money, but in its equivalent.

If, however, by rendering such free service we interfere with the livelihood of our professional brethren we are doing harm; for that reason, I think, the statements made regarding the desirability of an investigation are well advised. Every person who can pay should be made to pay at least something, but there are many cases that are deserving of free treatment, special treatment that can not be given by the ordinary country practitioner, and such cases should be sent to the County Hospital, or other charity hospitals, and receive the benefit of consultation with men who, through their experience, have been able to become specialists in certain lines of work. When I found, as I reported to the State Medical Society some years ago,<sup>1</sup> that a man became blind in the DeWitt County Jail because no one would treat him, and that another man, in the Williams county almshouse, had a fracture of the leg for six or eight months because no one would set it without pay, it shows the advisability of bringing such individuals to cities like Chicago, where hospitals, like the County Hospital, will be glad to receive them and take care of them. As you know, there has been of late years a lack of clinical material, and it is impossible to hold clinics unless there is material. Therefore, hospitals gladly welcome operative cases; by judicious investigation I believe we can bring to charitable institutions an increased supply of proper material which may well serve for clinical instruction.

As regards obstetric cases, it is of the highest importance that every student should have at least six or seven cases of his own, because when he enters practice, he will have obstetric cases very early in his career. If this be done in three weeks, well and good, but the element of time is unimportant. The plan I outlined for the late Dr. Etheridge some years ago proposed numerous substations where students could live from four to six weeks and attend the obstetric cases that came to them. Of course, they were to work under the guidance of an instructor, whom they were to call in for assistance whenever there was an interference with the labor. This instructor in turn was to send the patient to the hospital in case some capital operation was needed. In that way it was proposed to establish a system which would provide experience and instruction for the students and subserve the welfare of the patient and the community at large. I am delighted to hear from Dr. Bacon that some such system now exists, because it is a matter of paramount importance to the student and to humanity.

Dr. E. H. Ochsner:—I think we all agree that the chief offenders are the people in charge of hospitals, be they trustees, superintendents or Sisters Su-

1. Lewis (Denslow): The Management of our Charity Hospitals, *ILL. MED. JOUR.*, March, 1903.

perior. But who taught them their tricks? I will tell you, gentlemen, that the doctors taught them the bad tricks, and the only fault we can find with them now is that they were mighty good pupils. Not only the city doctors taught them bad tricks, but the country doctors as well. I could tell you of more than one case where a country physician had arranged to do an operation, and the patient, to make sure that an operation was needed, went to another physician, an enemy of the first physician, who told the patient to come with him to Chicago and he would see that the operation was done free of charge. Who is to blame in this case? The country competitor or the city specialist? I have had the same thing happen to me. A country doctor brought a man to me, stating that he was too poor to pay a fee. Would I operate for nothing? Yes, certainly. In a week the doctor's competitor wrote me the exact conditions, showing that the patient was well able to pay. Who is to blame? I or the doctor in the country, who brought the patient?

I know of an instance where a doctor went to the hospital authorities and asked why they allowed a certain doctor on the staff to charge so many fees. He volunteered to do the work for nothing if he were placed on the staff. Is it any wonder that the hospital authorities sometimes follow such advice when they are urged by the doctors to do it?

Teaching material should be drawn entirely from the pauper classes when no fee is charged by the clinician. Many people come to the clinics and think that because they are willing to serve as teaching material they do not need to pay. They have been taught that trick by physicians. When I was a student I often heard professors tell such people that it was not necessary for them to pay anything because they were offering themselves to the good of humanity. Is it any wonder that the public is now regularly expecting this?

Dr. Bacon brought out the question of modesty in the teaching of clinical obstetrics. Superficially it would seem that this would not have much bearing on the question under discussion, but on deeper investigation it is found to have great bearing, and here, again, physicians are to blame. I know of a charity obstetric institution in this city where there is on an average one birth a day. It is controlled by lady managers, who object very strongly to allowing the material to be used for teaching purposes. They hold up their hands in holy horror, in spite of the fact that the majority of the patients in this hospital are fallen women who happened to have become pregnant. And yet they are in a measure justified in their position, because they have heard of abuses in some of our hospitals that are outrageous. A single abuse will do more harm than a thousand proper acts can neutralize. For instance, in Vienna I saw a respectable young woman brought into the clinic stark naked and exhibited to 200 medical students. There was absolutely no occasion for this. One such demonstration in Chicago would put back our teaching facilities indefinitely.

A case in point: In Chicago about eight years ago the Cook County Hospital authorities allowed bedside instruction for about six months. They suppressed it for a good and sufficient reason. A very prominent clinician had the pernicious habit of walking into a ward where there were seventy-two female patients, and without having a screen put around the bed first, he would draw down the bed clothes, completely exposing the patient. That man meant no harm, but he did a lot of harm. Is it any wonder, then, that the Cook County Hospital authorities would not continue to allow bedside teaching?

Dr. E. H. Lackner:—I have been connected with the Michael Reese Hospital for many years. We have a large dispensary and treat many patients every day. We have in attendance usually some experienced person who has charge of the waiting room. In the course of time this attendant becomes acquainted with the patients, because, as a rule, such patients come regularly. If the people are not known, their names are taken and an investigation is made. The first treatment generally is given free, but before subsequent treatments are given the standing of the patient is ascertained, and if he can pay, he is excluded from the clinic, and is sent to a physician. The charity in the dispensary is based on a

strictly business basis. The patients are referred to some headquarters, and if they are poor, they receive all they need, even if they have to have some attendance at home. If any one of the family is sick, the case is investigated and the patient is sent to a hospital. If it is a dispensary case, it is taken care of in the dispensary. The medicines are supplied at a small rate. A lay board controls the charities. Of course, once in a while we are taken in, but if all dispensaries were conducted on that same basis, pay patients could in great measure be excluded. The work is done through a bureau of charities, with the assistance of the medical profession.

Dr. John M. Dodson:—As a member of the committee of which Dr. Renn is chairman, I have been very much interested in this question. While the information gathered will be of great value, it is only the beginning of a movement which must continue for a long time if we wish to do away with some of the abuses in Chicago hospitals and dispensaries.

I wish to endorse what Dr. Ochsner said. The medical profession is responsible for these abuses in almost every instance. The zeal for clinical material, the zeal of the young man to advertise himself has resulted in producing the conditions referred to. Although in such practices there is a temporary gain for a few, the profession as a whole suffers in consequence. We shall reach in this city the condition that has been reached in New York, unless we find some way to forestall it, of having a state commission to regulate the whole business by law and prevent the establishment of dispensaries where they are not needed, and regulate them very carefully where they are needed. That law, I understand, has not been entirely satisfactory, but it has done much to correct the abuses. I believe that the clinical material is ample, but we have made a mistake in putting the needs of the medical student ahead of this great question of charity. The foremost question to be asked when people apply for medical charity is, Are they deserving of it? We have no right to pauperize a community even for so great and worthy an object as the education of medical students. Moreover, I am of the opinion that the clinical material will be greater in amount when this business is properly regulated than when patients are taken indiscriminately, for the deserving poor will not associate with imposters. My experience in the dispensary with which I have to do will bear that out. The attendance has increased since we have made an effort to investigate cases and to exclude the unworthy.

I can not quite agree with Dr. Ochsner that only the pauper patients should be used for clinical purposes. I believe that many pay patients are perfectly willing to let themselves be used for clinical purposes. All persons should be so used only with the understanding that their presentation in this way is not in payment for services, but that it is a contribution to the great cause of educating medical students and advancing medical science. Dr. Ochsner has alluded to the shameful abuses which have been practiced, in the name of medical education, in some of the clinics, many of them being decidedly improper. Patients are sometimes treated not as human beings, but as cases. I have known teachers to exult over the accomplishment of the delivery of a woman in the amphitheater before hundreds of students. No one who has any conception of medical education could regard such a demonstration as other than an absurd, ridiculous and utterly unjustifiable procedure. The improper and unnecessary exposure of patients brings the whole business of clinical teaching into disrepute, and makes it difficult for us to get the right and proper use of clinical material.

Two classes of dispensaries exist here: those that are being used presumptively in the right way by medical colleges for teaching purposes, and those that are of the mercenary sort. My own feeling is that we had better let the latter class alone, and clean our own skirts first. I believe that this can be accomplished without legislation, by the appointment of a permanent commission on medical dispensaries by this society. We should invite the cooperation of all the dispensaries in the city and agree on a method of procedure and investigation, which might be conducted by the Bureau of Charities, because we must have one central

bureau. Each dispensary should agree to submit to a proper investigation at reasonable intervals by representatives of this commission. If the representatives of the better dispensaries would get together, a solution of this problem would be found, for we have not yet reached the serious conditions that have been reached in New York and some other large cities.

Mr. McCormick (by invitation):—Dr. Renn stated that 20,000 rations, at a cost of \$2 a piece, had been issued from the county agent's office, but only after careful investigation, while a large number of calls for medical service were responded to without any investigation. I want to say in justice to the county service that it is about as good as any county service in the United States. There are sixteen doctors on the staff, and the calls as they come in are indexed and filed away. When a call comes in for a doctor, the clerk refers to the index, and can tell in a moment whether that particular person has had a doctor before, at what times, and for what purpose. He refers the patient to the doctor, and it is up to the doctor, who sees the case, to say whether the patient is justified in receiving charity service from the county. If the patient is receiving charity services, but can afford to pay, it is the fault of the doctor, not of the county.

I would say, from what I know of medical service, and my knowledge of different dispensaries and hospitals in Chicago, that the medical profession itself is to blame more than any one else for this particular abuse. When I heard that 28,000 patients were treated in a dispensary in one year I was surprised, because in the county agent's office the total number treated in four years was much less than that, and all the people in Chicago feel that they have the right to apply for that relief which comes from the public and is not charity. I have always insisted that it should not be called charity, but relief. Twenty-eight thousand patients in one year as against 7,000 in four years is what I call doing a land office business. An investigation seems very necessary. In the rush to obtain patients and advertising, there is too much of this charity work done for people who can pay for it.

In regard to the County Hospital, I do not suppose that Dr. Lewis, in all the time that he served on the staff of that hospital, ever inquired whether a patient could afford to pay for the services. It is a fact that to-day there is practically no investigation made in the County Hospital. Of the 24,000 cases admitted each year, about two-thirds are not investigated. For instance, a man is knocked down in the street and is taken to the County Hospital. His clothes are searched and several hundred dollars are found in his pockets. He is given good treatment, as good as in any hospital, he stays for six weeks, and when he is discharged his money is handed back to him, and he walks out as well off, in fact, better, than when he came in. Is that fair to the taxpayers of Chicago? This society ought to take some action to force these institutions to work for charity patients only and not for everybody who comes in.

Dr. Denslow Lewis:—I am perfectly free to admit that during the sixteen years of my service on the staff of the Cook County Hospital I not only did not investigate the financial condition of patients, but I knew that in many instances some of the patients were friends and relatives of county commissioners and other county officers, and for that reason I was expected to operate on them for nothing, which I did very gladly.

Dr. A. E. Fischkin:—I believe we all agree with Dr. Palmer that the hospital abuses do more harm to the profession than the dispensary abuses. The cause of these abuses was mentioned by many speakers. I believe the profession could help if they would individually and collectively demand of hospital surgeons and clinicians that they pay more attention to the condition of applicants for relief. Dr. Palmer pointed out the abuses in Chicago. I believe that everybody connected with a hospital can point to certain abuses. So many operations are being done for nothing. I was told by a prominent surgeon of a man who came for an operation, for which he would charge \$200. The man did not return, but some



time afterward his brother told the doctor that another more prominent surgeon did the operation for nothing.

Dr. Lewis said that these free services at the hospital are paid for. They are not. If it is pay, the profession ought to blush for it, because we are practicing on the living and are using them to make a reputation for ourselves. How do the great men develop in Europe. They do not start in as head surgeons. They serve as apprentices first, as assistants, etc., before they are appointed as independent surgeons, but when they are appointed they receive a good salary. That is the way to study surgery, and that is the way to appoint surgeons. I believe that if this difference would be brought to the attention of the public, it would rather prefer to pay its hospital staff in salaries than in practice. Dr. Lewis says it pays because it gives us prominence. Why does the medical profession clamor to get prominence in this way when no other profession will do it? No minister in Chicago will preach seven years for the sake of training his tongue and becoming prominent and not get paid for doing it. The same is true of the architect, the lawyer and other professional men. They all get paid for their work, though in the meantime they are becoming proficient. Physicians are the only ones who work for nothing. They undergo all kinds of abuses in the shape of examinations, etc., just to have the privilege of working for nothing.

Another point which was brought out this evening is the material of maternity dispensaries. If the principle is correct that it is immoral to receive medical charity for a patient who is able to pay, then the woman who exposes herself in a maternity or a gynecological clinic is doubly repulsive, for she suppresses not only the moral sensibility, but also the feeling of dignity and of modesty inherent in every woman. I believe in Dr. Dodson's statement that every patient could be made to serve the purpose of teaching if he be shown its higher humane and divine motive; but so long as we claim the poor only as teaching material on the argument that this is their only way of paying for our charity, every woman who, being able to pay the doctor's fee, evades it by becoming clinical material is doubly repulsive, and in maternity as well as in any other service such abuse ought to be remedied.

Dr. Elmer L. Kenyon:—It seems to me that until physicians realize clearly that free treatment abuses result from their own efforts at self-exploitation, we are not likely to get far toward a solution of the problem. The position of the medical profession is a peculiar one, different from that appertaining to any other occupation. The physician is forbidden by his own rules to advertise in the usual ways, and the result is that he is continually seeking methods of advertising that are not unethical. This state of affairs gives to such a means of self-exploitation as free treatment service an exaggerated importance. Dr. Dodson has suggested that our study of this question has scarcely advanced beyond superficialities, and yet a suggestion for a remedy has been made here to-night that is not superficial. It was made by Dr. Palmer. His suggestion was, I believe, to the effect that certain instances of free treatment abuse might be met by declaring the culpable physician unethical. My own plan is almost universally comprehensive, but involves the same principle. It is, briefly, this: No patient whatsoever shall be treated free in any institution until he has first undergone an investigation for his economic fitness for free service; and any physician who treats free an institutional patient that has not received the approval for free treatment service of an authorized investigating body, shall be held unethical. There must underly the plan an authorized method of investigation, approved, but not carried on, by the medical profession. With such a universal method of investigation it is possible to rightly regulate medical charity. With the ethical whip held over physicians it is possible to make the plan practically universal. Herein lies the rational solution of the free treatment problem.

Dr. Palmer (closing the discussion on his part):—In my paper I merely hinted, and with some diffidence, that the doctor might be responsible for these evils, but you have removed any doubt that there may have been in my mind in

the matter. I will say that I heartily agree with you that the doctors are wholly responsible for the continuation of these evils. It has been suggested that the doctor is moved to render free service indiscriminately for the purpose of self-interest and self-advancement. If these evils are what we claim them to be, and if the clinicians, however prominent and distinguished they may be, are encouraging the evils for the purpose of personal gain, they are taking a position which is directly injurious to the profession as a whole, and our remedy lies in declaring these men to be unethical and in so treating them.

I fear that Dr. Ochsner thinks that I am holding up the virtue of the country physician in contrast with the iniquity of the city man. In this he is mistaken. I will say, however, that if Dr. Ochsner has only operated without charge upon the country patients vouched for by their home physician, he is an exception among the surgeons connected with the Chicago hospitals.

The discussion to-night indicates clearly that we have come to a place where action ought to be taken. Such action ought to be positive and definite. Our course seems to be clear.

Dr. Bacon (closing the discussion on his part):—I did not dwell especially on the importance of the investigation of our charity cases; but I believe in it. So far as obstetric cases are concerned, they can be investigated because most of the patients apply for service early, when there is plenty of time to investigate. I believe that all cases applying for help should be investigated by an impartial committee, not of ourselves, but of an independent organization, such as the Bureau of Charities. I did mean to emphasize that all cases that receive medical help should serve as clinical cases. I hold that obstetric cases are in exactly the same position as others, and that the management of these cases can be so conducted that there is no offense given to the modesty of the patient. The examples of abuses that were mentioned do not militate against that position. Some objection seems to have been raised to the use of obstetric cases as clinical material. I do not know how any one can practice obstetrics without clinical experience. There is need for thorough instruction in obstetrics more than in surgery. Skill in obstetrics is difficult to acquire, and because of the lack of clinical material, obstetric practice is much lower than other kinds of practice.

Dr. Renn (closing the discussion):—I do not think there can be any dispute between Mr. McCormick and myself. His remarks prove the truth of my statement. Calls are sent into the county agent's office over the phone, the files are looked up, and whether the applicant's name appears or not the physician is sent to make the call. Mr. McCormick says it is then up to him (the physician) to make the investigation, which proves that there is a departure from the system applied when no one asks for other forms of relief. The rule of the county agent's office is that no fee greater than \$1.50 shall be paid the physician, and that such a fee shall only be paid when medicine is dispensed. Now, these physicians accept these positions to make all the calls they can, besides they are physicians, and I do not blame them for refusing to act as investigators for the Cook County agent. The annual report of the Cook County Commissioners for 1905 states that over 18,000 outdoor patients were treated. The small number treated at the dispensary is accounted for by the fact that it is situated on Clinton Street in the heart of the large manufacturing district, where the employes are earning good wages and can afford to employ a physician. Another reason is that no one would look for a dispensary in that district, and even though they knew there was one there it would be difficult to find it. Dr. Bacon's position is well taken. There must be a sufficient amount of material for clinical instruction of obstetrics. There should also be greater cooperation between the profession and the medical colleges and there would be if the physicians at large did not feel that in these matters they were being treated unfairly. The records show that one maternity attended 1,300 cases, 200 each in two other maternal dispensaries, making 1,700 in these three maternities that we know of. Physicians feel that many of these people are being pauperized. Every general

practitioner in the city will tell you that he delivers from one to three women every year from whom he never expects to receive a cent; legitimate cases for charitable benevolence that could be turned over to these institutions, relieving us of the responsibility, wear and tear, and assuring them of skillful, scientific treatment, besides promoting the art of midwifery. When the teaching institutions stop the abuse of medical charity they will receive this benefit, the sick poor will receive the prompt, efficient treatment they deserve, and the general practitioner will receive his reward also.

*Regular Meeting, May 29, 1907.*

A regular meeting was held May 29, 1907, with the President, Dr. George W. Webster, in the Chair. Dr. William Allen Pusey read a paper entitled *The Use of Carbon Dioxid Snow in the Treatment of Nevii and Other Cutaneous Affections*. The paper was discussed by Dr. Frank Hugh Montgomery, and in closing by Dr. Pusey. Dr. Thomas J. Watkins read a paper entitled *Care of Suppurative Wounds Following Abdominal Section*. The paper was discussed by Drs. Albert Goldspohn, Carl Wagner, and the discussion closed by Dr. Watkins. Dr. Henry W. Cheney read a paper on *The Serum Disease*.

DISCUSSION ON PAPER OF DR. PUSEY.

Dr. Frank Hugh Montgomery:—I wish to say personally I am much obliged to Dr. Pusey for presenting this paper and for showing these patients. My interest centers chiefly, if not solely, in the treatment of pigmented nevi. For the vascular nevi and for the other cutaneous disorders for which Dr. Pusey has tried the carbon-dioxid, I think we have other established methods that give equally good results. For the extensive pigmented nevi, however, we have as yet no entirely satisfactory method of treatment. Excision of small areas, and excision followed by skin grafting in the more extensive cases, has, up to the present, given the best results. These are not entirely satisfactory, however, and we shall welcome any new method that will remove these blemishes and leave less scarring than is produced by excision and grafting. The freezing treatment with liquid air or with carbon-dioxid, as described by Dr. Pusey, seems to promise more than any other method with which I am acquainted. The results in the cases shown by Dr. Pusey are certainly good. The scarring is less than that which usually follows plastic operation.

It is manifestly impossible to remove these pigmented nevi without the production of some scarring, as the pigment lies too deep in the cutis. We are, however, looking for a method that will leave the smallest possible amount of scarring. Dr. Pusey emphasizes the fact that in the freezing treatment there is left the minimum amount of scarring. I do not believe he wished to convey the impression, however, that by this method deep and very disfiguring scars can not be produced. I was present at the demonstration in New York by Dr. Dade, mentioned by Dr. Pusey, and it was but a month or two later that I saw a case that had been treated with liquid air, in which the resulting scars were as deep and disfiguring as those of a severe burn. It is important, therefore, that the freezing process be not carried too far. As Dr. Pusey states, liquid air is not available for practical use, and we are consequently indebted to him for the substitution of carbon-dioxid, which is easily obtained and controlled.

Dr. Pusey (closing the discussion):—I quite agree with Dr. Montgomery that the interesting things pertaining to the therapeutic use of  $\text{CO}_2$  are the results in pigmented nevi. The results which I have shown to-night, I believe, are better than can be gotten by any of the ordinary procedures, and I believe the agent offers prospects of benefit in pigmented nevi that can not be obtained in any other way. I believe it is also likely to be a very useful method in the treatment of vascular nevi, at least the flat lesions. One very important feature of it is that the treatments are not very disagreeable; they can be carried out in children without eliciting any complaints, rarely causing a 6-year-old child to cry.

I am glad Dr. Montgomery mentioned the matter of scarring from liquid air. When I saw the demonstration of liquid air, I got the impression that it was



almost impossible to produce scarring; I soon discovered from my own experience that scarring was very easily produced, either with liquid air or carbon-dioxid. However, by timing your applications carefully and following the technic which I have indicated, the effects can be exactly controlled.

#### DISCUSSION ON THE PAPER OF DR. WATKINS.

Dr. Albert Goldspohn:—The subject which Dr. Watkins discusses deserves attention, although it is hard to bring forth any new thing. I am glad he emphasized the point of not being too meddlesome in the care of these occasional occurrences of suppuration of the abdominal incision. I take it that he refers to wounds in the abdominal wall only, not the deeper sinuses in the abdominal cavity.

Dr. Watkins:—I had reference to all suppurations in the abdomen that appeared in the wound.

Dr. Goldspohn (resuming):—It is harmful to use strong antiseptics, but we can use some things that have some germicidal value, and yet are not markedly destructive to tissue or to granulations.

I would take exception, however, to the statement he makes of being averse to keeping the outer openings of sinuses and wounds open. In these old sinuses or suppurating wounds, the skin granulates much faster than does the rest of the sinus, and the aperture through the skin begins to close at too early a date. It requires some method to preserve the external aperture sufficiently to maintain drainage, and anything that interferes with drainage is wrong. There can not be any discussion on that score. That is as simple as A, B, C. We are dealing with cavities or wounds that heal by granulation, and the wound secretion must be removed if these granulations shall prosper. There should be no hindrance to drainage which must be accomplished up-hill. Therefore, something more is necessary to maintain the external opening or that part of the sinus which goes through the abdominal wall, and is subject to the contracting influence of the recti muscles. This should be kept open.

As to the removal of the sutures that have to do with the skin, it is the proper thing to do, but not the removal of sutures in the deeper parts, as, for instance, in the muscle, because the muscle has too much to do with the solidity of the whole result, and guards against the prevention of ventral hernia. But the skin has no function, and any defect in it we can easily close afterward, when the deeper parts of the wound are solid.

Another thing with reference to drainage and irrigation is that it is very unwise to use large quantities of water or strong antiseptics; but if we have a sinus that undermines the skin, as sometimes occurs outside, we can expedite the obliteration of such an undermined cavity by making a counter-opening somewhere, so that we can run a current of water through it. There is a decided gain in every such case by having an opportunity to do that. The liquids which I regard as most advantageous are sterile water for irrigations, chiefly for the mechanical effect of the current of water to remove the effete substances which do not irritate the granulation tissue. For the care of the external part of the wound, particularly the skin, there is nothing as good as alcohol. Carbolic acid, lysol, bichlorid of mercury, etc., are not indicated. Occasionally, when these sinuses have become old and thoroughly walled off from the peritoneal cavity, they are much benefited occasionally if they do not progress, by being filled up with tinct. iodine and washed out again. When I say occasionally, I mean once a week or once in two weeks. As to the removal of the sutures from the skin, it facilitates drainage, and if the skin does not unite it is easy afterward to freshen the wound and put in sutures and you get a more solid result than you would from mere granulation.

Dr. Carl Wagner:—I am very sorry that I did not hear all of Dr. Watkins' paper. I was very much interested, however, in the part of it that I did hear. I would like to comment on one important remark made, namely, that where we use a compress on a suppurating wound it should be changed often.

Last summer I had an opportunity to discuss before the North Side Medical Society the after-treatment of hernia, and the question came up about stitch



abscesses. At that time I remarked that for the last few years I had succeeded by a simple method in avoiding them, especially when they most frequently occurred during the hot summer days, on account of patients perspiring freely. Undoubtedly, it is the perspiration, which is filled with microbes, that enters the field of operation and brings about stitch abscesses, and subsequently infection of the catgut in the deeper layers. In the hottest summer time I change the dressings three or four times daily, in many cases attending to this myself, and found that since that time there have been no complications.

Speaking of irrigation, I agree with Dr. Watkins that nothing but salt solution should be used. In my cases I have had success of late by not using the ordinary tube in the wound, but using a thin catheter and going in as far as the sinus reaches and through that remove the collection of pus or débris from the bottom of the wound without using a special drain.

In regard to drainage, I believe the rubber tube, if it is inserted for one thing or another, should be removed the second day. I use a rubber tube very rarely, and then only at the muscle layer, which Dr. Goldspohn mentioned as being very important, on account of its early closure, and leaving a pocket below.

In regard to closing suppurating wounds, I use, instead of silk or silkworm gut, silver wire, the silver wire being passed from one side to the other, and not going over the top of the wound ledge. The silver wire is fastened at the end to a leaden bullet passed through a leaden plate, then through the two wound edges again through a plate and fastened again by a bullet, riveting the wound, bringing about hemostasis if there was a little oozing from underneath. I have a case at the hospital at present in which there was suppurating of large glands in the inguinal region. In this case I closed the incision with two silver wire sutures. I made a long incision, but only needed two silver wire sutures to close it. I do not think I could have done this with less than seven other sutures. These two sutures brought the wound together very nicely. I removed the drain from the suppurating area on the second day, and at the end of five days there was no reaction.

Dr. Watkins (closing the discussion):—I stated in my paper what Dr. Goldspohn has said, namely, that there was nothing especially new in what I said. In the discussion, however, I feel that we are still in need of more missionaries to do away with a lot of meddlesome treatment of infected wounds. If these gentlemen will simply have the courage to treat these cases without drainage, without removal of stitches, without opening up the wound and without the use of antiseptics and packing, they will all be very much surprised to find that their cases do not need these things. The more we handle these wounds, the greater the danger of infection. Dr. Wagner is mistaken in saying that I irrigate with normal salt solution. I do not irrigate these wounds at all. I believe that irrigation is harmful, useless, meddlesome and dangerous. The doctor spoke of uphill drainage as one of the reasons for keeping the wound open at the top. If one keeps on wet applications as long as the wound looks angry, he need have no fear of its draining.

In regard to stitch abscesses, we have very little trouble with those now, because, as a rule, we have no stitches through the skin, except a twelfth or sixteenth of an inch from the edge.

#### *Regular Meeting, June 11, 1907.*

A regular meeting was held June 11, 1907, with the president, Dr. George W. Webster, in the chair. Dr. Edward H. Ochsner read a paper entitled *The Etiology, Symptomatology and Non-Operative Treatment of Potential and Acquired Flat-Foot*. This paper was discussed by Drs. E. W. Ryerson, John L. Porter, and the discussion closed by the essayist. Dr. Alex. Hugh Ferguson made some remarks on *Excision of the Knee-Joint*. His remarks were discussed by Drs. Norman Kerr, Carl Beck, and the discussion closed by Dr. Ferguson. Dr. Henry F. Lewis followed with a paper entitled *Torsion in Pelvic Tumors*. This paper was discussed by Dr. Fuller.

## DISCUSSION ON THE PAPER OF DR. OCHSNER.

Dr. E. W. Ryerson:—This paper opens up a large field for discussion, but I shall only touch on a few points. The essayist is right in saying that this is a much more common affection than is generally believed. The essayist believes that it is apt to begin at puberty. I am rather inclined to believe that it is more apt to begin with a change of occupation, and for this reason, I see every year a large number of shop girls who work in Marshall Field's store, at The Fair and other department stores, who are on their feet all day. They go from the grammar schools, past the age of puberty, begin to work, and immediately on standing on their feet so much they get the symptoms that have been described. This condition may occur at puberty or it may be congenital. Any change from an occupation, for instance, of schoolgirl to that of an individual who has to be on her feet throughout the day practically is apt to produce this condition. All the other causes Dr. Ochsner mentioned are likewise operative.

One of the chief causes of flat-foot is, as he has said, abduction of the foot, that is, the foot is turned out. One of the chief reasons for turning out the foot is because shoemakers all have an idea that no foot is beautiful unless the toes form an isosceles triangle, so that the big toe is abducted into hallux valgus, which later causes a change in the angle of the foot with the tibia. We call it pronation of the foot; that is, the astragalus turns outward, under the tibia. A large proportion of the cases of flat-foot are not flat-feet at all. They are simply abducted feet. There is in many instances an extremely painful foot, with no flattening of the arch at all, but a violent and painful strain on the ligaments which bind the tarsal bones together, because of the abduction of the foot. If we correct this abduction, we take more than one-half of the proper means for treatment.

A form of shoe which helps to cause flat-foot is such a shoe as is shown in one of the pictures here, with a short heel. The heel does not come forward far enough and the result is that instead of the weight being carried upon the anterior slanting surface of the os calcis, as it should be, to a certain extent, by pressure of the soft tissues, the foot is pivoted here on a fulcrum at the heel, and the entire weight of the body presses down upon that fulcrum through the middle of the foot and tends mechanically to flatten it. That is why so few so-called society women, and other women of social tendencies, but of not quite such exalted position, who wear extremely high heels, the so-called French heels, rarely have flat-foot. The French heels are placed well forward, almost under the middle of the foot, to make the foot look shorter, and they support the foot underneath in direct line with the weight of the body. If we can adapt them, so that the os calcis is tipped a little higher on the inner side, we help a great deal in these cases of flat-foot.

Most of these cases should be called weak foot and not flat-foot. Genuine flat-foot cases are rare. Real flat feet can not be treated with success by any of these conservative methods; they require operative treatment under anesthesia, with the forcible breaking up of adhesions and excision or tenotomy of the peroneus tendons, or even cuneiform osteotomy through the tarsus.

There is another form of weak foot which has not been mentioned, but which results in the production of the so-called Morton's toe. The anterior arch of the foot is almost as important functionally as the longitudinal arch. Many people come in complaining of callous places underneath the metatarsal heads; they have pain in the feet above the callous, and sometimes excruciating neuralgic attacks even where no callouses exist. This condition is known as metatarsalgia, or Morton's metatarsalgia. Not infrequently we see such people sit down on a curbstone because they can not walk any farther. I have had three or four such cases, and by making a little support of rubber or of leather, taking the weight from underneath the transverse arch and behind the callous, they have obtained immediate relief.

Dr. Ochsner's strapping method is one of the best that can be used in the treatment of those conditions of the feet he has referred to; but I do not think

it would be successful in cases of real flat-foot, because in many of these there are adhesions, and while it is an excellent method for weak feet, the treatment will not be available for true flat-foot.

The cardinal point of attack for us, in my opinion, is the shoemaker. If the shoemaker can be induced to build shoes straight, so as to let the big toe come out straight, we would not get so many cases of flat-foot to treat. When we can get the shoemaker to carry the heel far enough forward and tip it a little bit, so that it is higher on the inner side than on the outer side, we will have very few of these cases of flat-foot to treat.

Dr. John Lincoln Porter:—I want to say at the outset that I have enjoyed listening to Dr. Ochsner's paper. I think he has said more good things in a short space of time than anyone who has attempted to tackle the subject of flat-foot in a long time. The only fault I find with him is that he did not cover a larger field and say something about the more troublesome flat-foot cases.

In speaking of the etiology of flat-foot he did not dwell as much as I would upon the acute infections. I find that 25 per cent. of the moderate cases that come under my observation give a history of having had within five years some acute infection. In childhood it is apt to be diphtheria or scarlet fever, while in adult life it is more apt to be typhoid fever, influenza or some of the other adult infections; and when we come to the difficulties of diagnosis I noticed that Dr. Ochsner omitted saying anything about gonorrheal feet. In hospital work I find more cases of gonorrheal arthritis that have been diagnosed as flat-foot than any other one mistake, except, perhaps, rheumatism. As the doctor says, rheumatism covers a multitude of sins, and it is also true that the effect of gonorrhea as a cause of painful feet is often unrecognized.

In speaking of the etiology, Dr. Ryerson has said what I was going to say about the heels of shoes. The heel of the ordinary man's shoe, especially the short heel, and is designated in one of these diagrams, does not support the os calcis far enough forward to prevent its dropping, and as it drops it causes pain, which goes on to the development of flat-foot. With a short heel plus a narrow shoe, there is a tendency to abduct or pronate the foot, and until a very few years ago all of our fashionable shoe lasts squeezed the toes together, as well as pushed them outward. Those two factors of themselves are enough to start a flat-foot, and I quite agree with Dr. Ryerson that we want to get after the shoemakers in the crusade against the production of flat-foot.

From a clinical point of view, we ought to divide so-called flat-foot into three groups. As we talk about flat-foot here, many of our audience may have different mental pictures of the conditions we are talking about. Flat-foot clinically can be divided into three groups, as regards diagnosis and treatment. The first is the weak foot, in which pronation and supination are free, but in which there is pain, and when a patient puts weight on his foot, there is a tendency toward a rolling in of the tarsus and obliteration of the arch. Second, flat-foot in which the arch is lost whether the patient stands up or sits down and walking is painful though there may be fairly good supination. Third, are the rigid feet which neither the patient nor operator can supinate, and the feet are badly pronated. One of the factors in the production of the pronation is a spasmodic contraction of the muscles, chiefly of the peronei. I have seen many cases of flat-foot which seemed rigid, so that I was unable to supinate the foot and build up the arch, but when I gave the patient an anesthetic and completely relaxed the spasm of the peronei muscles the foot could be easily restored to its normal position.

I am sorry that Dr. Ochsner did not say more about the treatment of flat-foot with plates. The tendency of those who know less about the treatment of flat-foot is to resort to some sort of support, usually some form of plate, and I can only commend what the doctor said about beginning the treatment of weak foot and flat-foot, too, with strapping and exercise. The tendency of a great many is to send the patient at once to a shoemaker and have a high lift put in the arch. There is one group of cases of flat-foot which, in my opinion, needs support, and that is the second class I spoke of, in which the arch is obliterated

but which can be corrected. Patients belonging to the first class can be cured of flat-foot by judicious strapping and exercise, and patients of the third class can not wear a plate. Usually the pain is so intense on the first application of the plate that they are unable to walk. No flat-foot should have a plate underneath the arch unless it can first be perfectly restored and the arch lifted up. Another thing, a plate should always be made for the individual foot, and the patient should not be sent to a shoe store or an instrument store to buy a plate.

Speaking about adhesive plaster, I was amused last year, while in Berlin, to learn that Hoffa sent to America for adhesive plaster. While I am opposed to advertising anyone, still I want to say that the adhesive plaster known as The American Surgeon's Adhesive Plaster gives me more satisfaction than any other adhesive plaster I have used, because it is spread on strong moleskin and adheres firmly without being sticky.

In the matter of exercises in mild degrees of flat-foot, we should try to induce the patient to place the foot straight upon the floor. One of the best exercises is to try and walk like a club-footed patient, and when he gets so that he can walk that way he is not troubled very long with flat-foot.

Dr. Ochsner (closing the discussion):—I have really not very much to add. With reference to the question of plates, I referred to them in the unread portion of the paper. I think it is a disgrace to the profession of the present day for any physician or surgeon to send his patients to an instrument maker for a ready made flat-foot. To me it is unmistakable evidence of slovenliness of thought and action.

As to occupation, I agree that is a very important factor. I did not have time to say very much about it and on the whole I agree with what has been said in the discussion; nevertheless, I have seen quite a good many children complain of this affection who were going to school, who have not changed their occupation, and quite as large a percentage of them, I believe, as of those who had changed their occupation. Change of occupation and puberty come about the same time, so it is impossible to say which is the more common cause of this condition of the feet. If you will examine high school boys you will find that a large percentage of them have potential flat-foot, and by potential flat-foot I mean a condition which will become flat-foot when there is an excessive strain placed on them. The acute infections undoubtedly cause flat-foot, and such infections may produce either a general or particular muscular weakness which will cause the symptoms of flat-foot. After those periods, when there has been excessive strain of some kind and excessive weakening of the foot, from some of the causes enumerated, it is our duty as physicians to look after these patients and not send them to instrument makers to have flat-foot plates made. Flat-foot plates have been made for this case and that case in such a haphazard way that it is a question whether they have not done more harm than good.

#### DISCUSSION ON THE PAPER OF DR. FERGUSON.

Dr. Norman Kerr:—I was very much interested in the method described by Dr. Ferguson of sawing the bones, because it was my pleasure as a student to assist Dr. Fenwick of Montreal, and this was the method he used in removing the anatomical curve of the head of the femur and then sawing out a corresponding curve in the head of the tibia. He reported in his paper several cases in which he claimed he got a certain amount of motion afterward, and that was the reason he adopted this particular method of sawing the bone, namely, with the hope of gaining some motion in the joint. To my mind, I think a different method of sawing the femur has certain advantages over this, because with this method we are more liable to allow lateral rotation of the leg, and I do not believe there is as much fixation as if we were to saw through the femur in such a manner as to leave a blind wedge and then saw a piece out of the tibia, into which the sawn end of the femur fits accurately. If we have any fear that we will not be able to fit the bones without previously marking them, if we will take a piece of sheet iron, which is easily sterilized, to correspond with the width of the leg



and curve the edge in this way (indicating), it can be fitted at the angle you want it, and apply it to the side of the leg and the other bone sawed. Now, we have two parallel surfaces, which will fit each other. I think that this method would be more applicable in those cases in which there are large tubercular cavities, whether in the head of the femur or in the head of the tibia, because we have more purchase than we would have in a curve in the sawed line of bone. I believe Dr. Fenwick, who was the first to bring out this method of sawnig the bone, ought to be given credit for it.

Dr. Carl Beck:—The paper of Dr. Ferguson has brought out some interesting points in regard to the technic of resection of the knee-joint, and the method he has described is certainly an improvement on those that have been used up to this time or that have been in vogue. Unfortunately, the pathology of the knee-joint is such that this method will be used only rarely. Through the treatment of Bier and through the treatment adopted by orthopedic surgeons, the field for resection of the knee-joint is now very limited; and whereas about ten or twelve years ago we resected a number of knee-joints, this operation is now becoming very rare in surgery. The Ferguson method will be applicable to only one kind of tuberculous, and that is the purely arthrogenous type of tuberculous, where the cartilaginous portion is largely destroyed, and where small tubercular foci underneath the cartilage are present. But as I have previously said, the field for surgery nowadays in knee-joint cases is largely confined to those in which we have deep fistulous tracts, where considerable portions of the cancellous structures of the bone are destroyed, or are the seat of tuberculous. In these cases a typical operation nowadays is considered impossible, and we have to devise a method for almost every individual case. Typical resection of the knee-joint is practiced very rarely now among surgeons.

With regard to partial resection of the knee-joint, for the removal of the tubercular process, if we find it, and trying to fill out these cavities that have been produced by the resection, in this field I think Mosetig has done an invaluable service by his iodoform plug, which I have used myself with advantage in a number of cases. The cavity is filled and not drained.

Dr. Ferguson has called our attention to several important points, and I think we can learn a great deal from his methods of operating. One of the points to which he has directed our attention is the importance of prevention of infection of the knee-joint during the operation. This is a most important point, and this infection can only be prevented by the careful use of instruments, and by the careful non-use of the hands. If we keep our fingers out of the knee-joint cavity and use nothing but instruments, using them as sparingly as possible and producing as little traumatism as possible, leaving as few foreign particles in the cavity and the field of operation as dry as possible, the result will almost invariably be primary union. Drainage in such cases where the cavity is absolutely dry is not necessary, as the material in there easily becomes encysted; but drainage invites a flow of serum outward, so that there is great liability of reinfection of tissue spaces.

Dr. Ferguson (closing the discussion):—In my paper I did not claim any originality for the method described. Finnie, of Montreal, may have been the first to use the external incision. Sawing of the head of the femur in the manner I described, and in the way in which I prefer to do it, if I can use it, as all surgeons know, should be credited to Dr. ———, of Montreal, and if he was not the first to remove the knee-joint in America, he was one of the first, and certainly one of the men who, after Sir William Ferguson, followed and popularized the method in this country.

Sewing up the joint completely, as recommended by Dr. Beck, I have not done; but we will find that after the secondary dressing which we have to apply, on account of the distress of the patient, the joint will be full of primary wound secretion, and the patient will complain of pain. In such cases I use an innocent kind of drainage, and that is, silkworm gut drainage, which removes

the blood serum, but you can remove that with a secondary dressing, and there is no hole left. That is why I use silkworm gut for these cases.

The sawing of the bones in different directions, as mentioned by Dr. Kerr, has been tried repeatedly and found wanting. There are only two ways in which we can recommend the sawing of the bones, namely, either saw them off square and bring the ends together, or not let them be dove-tailed. If you try to dove-tail them you have not the proper normal bone.

#### TORSION OF THE PEDICLE IN PELVIC TUMORS.

HENRY F. LEWIS, M.D.

CHICAGO.

(Abstract.)

The pelvic tumors most often subjected to torsion of the pedicle are ovarian, especially dermoids. The uterus may be involved in the rotation of a subserous fibroid or may be itself twisted upon its attachments. The parovarian cyst may have a pedicle long enough to become twisted. The Fallopian tube has often been subjected to this accident, usually when subject to a hydrosalpinx. Pyosalpinx, on account of the frequent adhesions, is rarely twisted on its pedicle. A pregnant tube has been observed to be constricted by a twisted pedicle, so also has the normal tube.

The following conditions permit and favor the torsion of the pedicle of a pelvic tumor: Moderate size favors torsion. The very large tumors seldom become twisted. In Storer's series of 248 cases of torsion of the pedicle of ovarian tumors 66 per cent. weighed less than ten pounds. Mobility is essential. Therefore the tumor must have few adhesions and must not be pressed down snugly into the bottom of the pelvis. Laxity of the abdominal walls, such as appears in women who have borne many children in a short time or in those who have rapidly lost much flesh, favors mobility and therefore rotation of the tumor. Tumors which are most likely to have twisted pedicles are those having marked irregularities of surface or irregular distribution of weight within their substance. Therefore, dermoids, multilocular cysts and solid tumors are such tumors. Eighty-three per cent. of Storer's cases were of this class. The equilibrium is disturbed by the irregularity of the weight and the irregularities of the surface offer many points for the exercise of the twisting forces. The period just after normal labor is one in which conditions are favorable for torsion. The longer the pedicle the more likely is the tumor to rotate, but with a long pedicle more rotations are required to produce strangulation than with a short one.

Besides the conditions favoring torsion, there must be some exciting causes in the individual case. Such causes are largely theoretical, but many mentioned seem plausible. Storer tabulates a number: In the tumor itself, irregular growth; in the uterus, pregnancy, the exertions of labor, the condition of void after labor in which the tumor falls into the space left by the diminished uterus; in the bladder, alternate filling and emptying, aided by movements of the rectum; in the rectum, violent efforts at stool, rolling of the tumor into the space left by the emptied bowel; intestinal peristalsis; influence of another tumor; certain unusual movements of the body; strains of the abdominal muscles; trauma, such as a fall or jolt.

The results of torsion to the patient and to the tumor depend upon how quickly and how nearly completely the blood supply is cut off. A complete twist will suddenly stop the circulation in veins and arteries and cause immediate necrosis. The foreign body will then likely become infected by way of the blood stream or from the neighboring alimentary tract. If death does not ensue from shock at once it will probably follow soon from peritonitis unless operation is performed. A less complete shutting off of the vascular supply is more common. The twist is more gradual and shuts off the more easily compressible veins first, thus causing edema and passive engorgement. Then follows hemorrhage into the cyst wall and cavity and a rapid augmentation in size of the tumor. Adhesions soon take place between the surface of the tumor and the surrounding struc-

tures. These are rarely very firm and do not usually much interfere with further twisting of the pedicle.

The torsion follows certain definite rules. Küstner formulated a law which is almost always followed, especially by ovarian tumors, less frequently by torsion of the tube or of the uterus. His law is that tumors of the right side twist in the same direction as the hand of the same side would in making the motion of supination. Therefore the twist of the pedicle of right-sided ovarian tumors is in a spiral opposite in direction to that of a corkscrew and the twist of a left-sided pedicle is in the same spiral as that of a corkscrew.

The clinical points of diagnosis are fairly typical. The fact that a tumor has been known to exist before the acute symptoms of torsion come on is highly valuable. Often there is a history of exertion or some slight accident just before the symptoms. The acute symptoms are sudden sharp pain usually on the side where the tumor is; this pain often radiates down the flank and thigh of the same side; the tumor rapidly increases in volume and becomes very tender on pressure; there is usually severe and persistent vomiting; in most instances there are signs of shock; later come signs of peritonitis.

Appendicitis is the disease most likely to be confounded with twisted pedicle. The sudden pain, shock, rigidity of the right rectus muscle, vomiting and local tenderness are points of similarity. Vaginal examination will usually clear up the doubt. Tubal pregnancy may be confused with the disorder in question. The absence of cessation of menses, less marked signs of hemorrhage, less emphatic signs of shock and the increasing instead of diminishing size of the tumor will be points for the diagnosis of torsion. Ruptured cyst gives a rapidly diminishing or disappearing tumor and the signs of shock are usually less than with torsion. Probably nearly all the so-called inflamed cysts are really cases of pedicle torsion. Movable kidney may itself rotate so as to twist its pedicle. Volvulus may give symptoms and even physical signs like those of torsion.

In cases of torsion of the pedicle it is almost always impossible to distinguish whether the tumor was originally tubal, ovarian or parovarian unless the previous history of the case was known. In Storer's series of 63 cases of torsion of the pedicle of a tubal tumor the tubal character of the tumor was suspected beforehand in only one.

The prognosis of torsion of the pedicle of pelvic tumors depends almost entirely upon the treatment. Aronson's figures show: Of 26 cases not operated upon there was a mortality of 81 per cent.; of 36 cases operated upon there was a mortality of only 17 per cent.

#### DISCUSSION ON THE PAPER OF DR. HENRY F. LEWIS.

Dr. William Fuller:—I would like to speak with reference to the strangulation of abdominal and pelvic tumors produced by torsion of their pedicles. Strangulation due to a twisted pedicle will depend, first, on the degree of tightness of the twist; secondly, on the size and length of the pedicle. In some tumors several turns may fail to bring about strangulation, while a single rotation in other tumors may result in complete occlusion of all the vessels in the pedicle.

Dr. Lewis referred to gangrene of these tumors. It seems to me very important that we should remember that tumors of the abdomen deprived of their blood supply in the manner described in the doctor's paper to-night rarely, if ever, result in gangrene. The operation often discloses a dark or even black appearance of the tumors, resembling, perhaps, at first glance, a gangrenous condition, but which does not often occur. If such tumors after their removal are emptied of the blood contained in them they remain no longer black, but show at once their normal color.

The fact that the air can not reach these tumors, except through a trocar or aspirating needle, or possibly some accident to the bowel wall through which air may enter the peritoneal cavity, explains why gangrene of a pelvic or abdominal tumor whose pedicle is twisted rarely ever takes place.

## CHRISTIAN COUNTY.

On July 18 the Christian County Medical Society met in Taylorville and the meeting was one of unusual interest. The following visitors were present: Drs. J. Young Brown and Wm. Engelbach of St. Louis and Dr. Wm. Dunean of Pawnee.

The forenoon session was held at the hospital, where Dr. Brown performed a hernia operation under spinal anesthesia. A case of hernia that had been operated on by the injection of paraffin was present for examination and was of more than passing interest as it had been operated on two or more times previously. A lad who had broken his thigh added to the clinic already at hand and afforded Dr. J. J. Connor an opportunity to demonstrate the merits of the new hyosein-morphin-caetin anesthetic, on which he read a paper in the forenoon. At 1 o'clock the society repaired to the Antler's hotel for dinner.

In the county court room at 2 o'clock the meeting was called to order by the president, Dr. J. J. Connor, and after the usual business the report of the delegate to the State Society meeting was given. The first paper, From Miraele to Medicine, was passed by as its author, Dr. A. F. Turner, had not yet arrived, and the next subject, Remarks on the Surgical Treatment of Septic or Diffuse Peritonitis, was presented by Dr. John Young Brown of St. Louis. The doctor entered into the origin of the disease, its pathology, prognosis, and paid especial attention to the treatment, which may be summed up in "The shortest possible operative procedures, that will evacuate pus and infection and disturb the organs as little as possible and then drain and use abundant proctolysis of normal salt solution." His address was certainly excellent and in the discussion but one member dissented from his views, while all others who took part heartily agreed with him.

Dr. Wm. Engelbach, also of St. Louis, next addressed the society on Gastric Tetany and presented a case that had been under his care and had undergone an operation at the hands of Dr. Brown. This was a very interesting as well as rare case. It was interesting both on account of its rarity and from the successful recovery that ensued. In this case there had been a gastric ulcer near the pylorus and the resulting cicatricial formation seemed to be the exciting point. The tetany involved the hands first, then the feet, then other parts of the body, and was excited by the ingestion of food. Emptying the stomach would often relieve the patient of the spasms (as well as her dinner), but proved burdensome and distressing. At the present time, some two or three months after operation, the lady can eat almost anything she wishes and enjoys it without discomfort of any kind. Dr. Engelbach dwelt on the points of diagnosis and the poor prognosis of these cases in general.

Dr. M. W. Staples of Grove City read a paper on The Value of Organization. Instead of being dry and prosy, as such subjects often are, the doctor was heartily applauded for his views and expressions.

Dr. J. J. Connor of Pana called Vice President J. H. Dickerson to the chair while he read a paper on Hyosein-Morphin-Caetin, the New Anesthetic, Its Use and Some Experiences With It.

In this the doctor reported its use in two obstetric cases in which the patient felt no pain at all and one amputation of a finger in which the man talked about the operation and commented on its performance and said he felt no pain. The boy with broken thigh mentioned above afforded an illustration of its use before the society. This lad experienced very little pain during the reduction of the fracture and was able to talk to the various members, answer questions and make comments of his own.

On account of the lateness of the hour, the last paper, Phenyl Hydrazin Test for Sugar, by Dr. T. A. Lawler of Taylorville, was omitted. The fact that the meeting continued from 10:30 a. m. to 6 p. m. is evidence that it had more than passing interest.

Two members were added to our list.



**CLARK COUNTY.**

The Clark County Medical Society met in regular session July 11, at 1 p. m. in Dr. Bruce's office in Casey. Members present: Burnside, Johnson, S. W. Weir, L. J. Weir, Williams, Ryerson. Visitors, Drs. Akester, Stoltz and Heywood. Dr. I. L. Firebaugh of Robinson was present as an invited guest. Dr. S. W. Weir reported a case of empyema which had been operated but was not doing well. Other similar cases were reported in the discussion, which was participated in by all present.

Arrangements had been made for the Crawford County Medical Society to furnish the paper for this meeting and our society to present a paper at their meeting later in return, and Dr. I. L. Firebaugh presented the subject of Fractures, giving a general description of fractures, causes, symptoms and treatment, then took up fractures of the different bones in detail, offering many practical points. His efforts were well received by the society and a lengthy discussion by all present followed. A rising vote of thanks was given Dr. Firebaugh for his entertaining and instructive address. The interest in the meeting was excellent and lack of more time required us to reluctantly adjourn.

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**DOUGLAS COUNTY.**

The regular quarterly meeting of the Douglas County Medical Society was held in K. of P. Hall, at Tuscola, July 11, 1907. On account of the weather only nine members were present. Dr. McNeil, our representative, gave the society a most excellent report from the State Society. Dr. W. S. Martin of Tuscola was elected as medico-legal representative from Douglas County to the State Society and Dr. W. C. Blaine of Tuscola as representative to the Legislative Committee of the State Society.

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**FAYETTE COUNTY.**

The Fayette County Medical Society met in the Supervisors' Room at Vandalia, Ill., Wednesday, July 10. The following program was carried out: Valvular Heart Disease, Dr. A. McReynolds, Vera. How to Avoid and How to Fight a Malpractice Suit, Hon. J. J. Brown, Vandalia. Epilepsy, Dr. Marc Ray Hughes, St. Louis.

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**FOX RIVER VALLEY MEDICAL ASSOCIATION.**

The eighty-fourth semi-annual meeting was called to order at 10:20 o'clock in Unity Hall, Elgin, May 14, 1907, President A. A. Fitts in the chair. Twenty members were present at that hour, but the number increased to forty at 11 o'clock. Dr. Frank J. Mahan of Algonquin was unanimously elected to membership. Dr. Achard of the program committee having removed from the district, Dr. J. W. Dreyer of Aurora was elected to fill his unexpired term. Dr. Nason of the same committee being absent, Dr. Tapper of Elgin was appointed to serve in his place for this meeting. Dr. H. J. Gahagan, Elgin, reported that a joint meeting with the Aux Plaines Branch of the Chicago Medical Society, would be held at Wheaton June 26, at which Dr. W. F. Scott of Maywood would read a paper on Surgery of the Prostate, and Dr. W. C. Bridge of Elgin a paper entitled The Etiology and Pathology of Tuberculosis in Infancy and Childhood. The secretary was instructed, as soon as all the arrangements are complete, to send notices to all the members.

The secretary-treasurer reported some of last years' dues still unpaid, and explained that being unable to obtain the manuscript of the papers read at the Geneva meeting, he could not publish them as directed. He called attention to the wishes of the Bureau of Water Survey that the society would investigate and endorse its work, and read the resolutions relative to life insurance examinations submitted by the Kentucky Medical Society. The report of the secretary-treas-

urer was accepted and the life insurance examination resolutions adopted as follows:

WHEREAS, Many of the life insurance companies have notified their medical examiners of a reduction of examining fee from \$5 to \$3, and

WHEREAS, We as physicians, realizing the responsibility incident to proper examination of the individual, believe such reduction to be unjust, therefore, be it

*Resolved*, That the Fox River Valley Medical Association in session assembled do hereby declare such reduction to be unjust and respectfully request that no physician legally authorized to practice medicine in Illinois accept such reduction of fee, and further that any physician accepting such reduction be guilty of a breach of professional courtesy.

*Resolved*, That it is the sense of this association that hereafter in each examination for life insurance in which urinalysis is required the minimum fee shall be \$5.

*Resolved*, That the several component societies forming the state society be requested to adopt these resolutions. That the above rates shall not apply to industrial medical inspections, without urinary analysis, for amounts less than \$1,000. That no member of this association shall enter into any contract or agreement with any corporation, society, association, company, or individual to examine applicants for insurance for any stated or lump sum, thereby evading the spirit and instinct of the foregoing resolutions. That the payment of all fees shall be authorized by the home office of the society or corporation to which such application is made and under no circumstances shall the examiner receive or accept any part of this fee from any agent or other person or corporation, unless the full fee be paid by the authority of the home office. That each member of this association pledge himself or herself in case a fellow member be removed from the position of examiner for any corporation or society solely because of this action of the medical profession, that he or she will not accept an appointment from such corporation or society as examiner, nor make any examination for same in Illinois. That each member of this association bind himself or herself by a pledge to be presented by him or her to the secretary, to abide by these resolutions.

The society then passed an amendment to the constitution providing for the reception of members by transfer from other county societies of this state on presentation of proper credentials, and an amendment to the by-laws providing for the election instead of the appointment of delegates to the state or other meetings. The next order of business was the selection of a delegate to the Rockford meeting of the state society. This resulted in the election of Dr. H. J. Gahagan of Elgin.

The society then listened to a paper on the Clinical Aspect of Kidney Diseases, by Dr. W. J. Calhoun of St. Charles.

#### CLINICAL ASPECT OF KIDNEY DISEASE.

W. J. CALHOUN, M.D.

ST. CHARLES.

The question of the clinical aspect of kidney disease is so broad that I will confine my remarks to the acute and chronic interstitial forms of nephritis and go into some of the details of the effect of the chronic form upon the circulation.

When we say the patient has Bright's disease—a very common expression—we refer, usually, to a person who is able to be about and to do more or less work, but who suffers from more or less continued ill health. The popular term "Bright's disease," then describes very well a certain form of degeneration of the arteries and kidneys. More interesting, however, are cases of disease of the kidneys in which the patients present very acute symptoms, but which, under appropriate treatment, frequently go on to complete recovery. Thus there are two well-defined groups of cases of Bright's disease—the one comprising many individuals who are more or less chronic invalids, the other patients who are attacked suddenly, who are very ill for a time, but who have a fair chance of recovering.

The classification of kidney disease is still to a great extent a matter of clinical symptoms. Attempts to arrange diseases of the kidneys according to what is actually seen by the microscope after death are not altogether satisfactory in their results. The kidneys which after death show the plainest changes are often those which gave the person the best chance to get well. On the other hand, people die of kidney disease, although there was but little apparent disease in the kidneys themselves. The reason for this is that affections of the kidneys are rather of minute details of structure, and the small cells of the kidneys may be degenerated or paralyzed without producing any change in the general appearance of the organ.

In acute nephritis we have an acute inflammation of the kidneys, and either of a mild or severe character. The onset is sudden, as a rule, but varies with the exciting cause. Chilliness, nausea and vomiting, pains in the back, and within twenty-four hours dropsy, are seen in some cases. Children are subjected to convulsions (uremic), and in severe cases adults are no less liable. Fever may be present, but it is neither constant nor high. The early appearance of puffiness of the eyelids and face and of pallor of the skin is characteristic. Soon, and sometimes at first, a swelling occurs about the ankles and legs, and in severe cases dropsy invades the whole body. The scrotum, penis or labia may in such cases become enormously swollen, the skin presenting an almost translucent appearance. Often local symptoms are absent, as pain and tenderness in the lumbar regions; they are never marked.

Micturition may be frequent and accompanied by a slight burning and vesical tenesmus, due to the concentrated urine. In very severe dropsy the tense dry skin may become sensitive or even painful on pressure, bodily movements are often painful and difficult in cases of marked anasarca. Cardiac hypertrophy may be present in a slight degree. The aortic second sound is accentuated. Epistaxis appears occasionally and subconjunctival hemorrhages follow uremic convulsions.

Uremic manifestation may supervene at any period, appearing early in the most severe cases with intense headache and backache, vomiting and convulsions.

I will here report a case which I had under my observation recently and I hope by so doing to elicit a discussion which will enable me to cure my next patient.

Richard S., aged 9 years; mother and father well; was always a strong healthy boy until last fall, about six months ago.

About this time his mother noticed that he had great difficulty in retaining his water, having urgent calls to urinate every hour or two of the day and night, and soon after this symptom was first noticed it was observed that his face was puffy and his eyes swollen on awakening in the morning. This condition continued and in the course of a short time his mother noticed that his feet and legs were also swollen.

I was called to see the boy and found him as described by his mother. At times there was slight improvement, but his general course was toward an increase in all the symptoms. In about one week there was a condition of general anasarca, the face being so swollen it was impossible for him to open his eyes; his legs, arms and abdomen being enormously enlarged by the exudations of serum.

The temperature was moderately elevated, ranging from 100 to 101 F. The pulse was hard, wiry and rapid; the respiration was increased. There was found marked pallor of the face and anemia, quite characteristic of this disease. An examination of his urine gave the following results: Color, dark; reaction, acid; specific gravity, 1030; albumen, great quantity. The albumen was so abundant that boiling caused the urine to coagulate into almost a solid mass in the test tube. The amount of urine passed per day was from one to three ounces, with the exception of about thirty-six hours, when there was complete suppression. Duration of attack was three weeks. Cause of death, acute pulmonary edema.

This is a clinical picture of a case of acute parenchymatous nephritis, or simple acute nephritis of children. This is the most common form occurring as a sequel to the infectious fevers, following exposure to cold, and at times occurring without any apparent exciting cause.

Nephritis is of frequent occurrence, both in infants and older children, and usually follows some of the infectious diseases, as influenza, measles, varicella, pertussis, typhoid fever or the acute diarrhea.

The most common factor, however, is scarlet fever. Nephritis usually develops during the third week of the disease, but especially in septic cases, or those with severe throat lesions. It is not unusual to find albumen in the urine during the height of the fever.

The most interesting point in this case is the fact that it was apparently caused by exposure to cold. Boy got wet going to school, and remained in school all day with wet clothes and feet. This is a frequent exciting cause of nephritis. Just as sudden changes or exposures in one person will cause an inflammation of the respiratory tract, with coryza, pharyngitis, bronchitis and cough, and in another a congestion, and inflammation of the intestinal tract with diarrhea and other symptoms of indigestion, so, as in this boy, they may produce an acute inflammation of the kidneys with the accompanying grave symptoms.

The diagnosis of acute nephritis offers no difficulty in the diminution in the quantity of urine, the swelling, first in the face and going on to a condition of general anasarca, and the presence constantly in the urine of albumen in considerable, or as in this case in large quantities, makes the nature of the disease very evident. When death occurs from diseased kidneys, the direct causes are heart failure, uremia and edema of the lungs.

The subject of chronic nephritis is so broad that the best way to approach it is with a typical common case—a case of chronic kidney disease in which the kidney has undergone changes similar to associated changes in the blood vessels and some other structures of the body.

*Patient.*—R. G. This man is 40 years old. His family history is negative. He has been in the habit of drinking quite steadily. He has never had syphilis or any acute disease. Up to a month before I saw him he did not notice anything was the matter with him, but at that time, after having been drinking a little more than usual, he began to suffer from headache, his stomach became disturbed, the urine lessened in amount and he noticed that his legs were swollen and that he was short of breath.

Examination of urine showed a specific gravity of 1002 and a faint trace of albumen. He passed a moderate amount of urine—from 35 to 49 ounces a day.

This man had had what is popularly known as Bright's disease for a long time before his present attack began. He had been suffering from the effects of alcohol on the blood vessels and kidneys; his kidneys had been the seat of an inflammation. This inflammation instead of being like the ordinary inflammation that we see on the surface of the body, was characterized by the production of new connective tissue; for that reason the kidneys had become hard and contracted and carried on their work with difficulty.

A strange thing about contracted kidneys is that they excrete a larger quantity of urine than normal kidneys; the specific gravity, 1002, is very low indeed for urine. The average person with chronic Bright's disease passes urine with about one-half the normal specific gravity, and in quantity about half as much again as a well person.

I find that the earliest manifestations of chronic interstitial nephritis are high arterial tension, headache, palpitation of the heart, dizziness, nausea, edema of the feet and often of the eyelids, shortness of breath, ringing in the ears, albuminuria and frequent micturition, especially at night.

Chronic interstitial nephritis is a disease characterized by a degeneration of the kidneys and the circulatory system. One can never separate the circulatory apparatus from the kidneys. The first thing that may be noticed is the high arterial tension of the blood and circulation. The cause of this high arterial tension is mechanical, and its origin is in the action on the blood vessels of a retained poison that should be carried off by the kidneys. The work of the kidneys is to remove from the circulation fluids and the waste products of the chemistry of the body. In Bright's disease the kidneys are deficient in action and something is left in the circulation that ought to be removed. This substance circulating in the blood vessels, causes an irritation of the muscular coats, in consequence of which the vessels contract.

The muscular fibers of the arteries gives them the power to contract. That power of the blood vessels to contract and expand is one of the most important in all physiology. For instance, suppose a limb is paralyzed and it becomes swollen. The reason for this is that the nerves being interfered with, the blood vessels are no longer under proper control and they allow the blood to accumu-



late and finally the blood serum to escape. It is more difficult for the heart to keep pumping, but the heart is most wonderfully controlled by the nervous system and is regulated to give a sufficient blood supply to any part of the body as required; so the heart works harder to do its work, but the blood vessels continue to resist. The result is an increase of the pressure in the blood vessels. This is the cause of high arterial tension in Bright's disease.

It may be said that the early stages of chronic interstitial nephritis usually escape detection, or they are discovered accidentally by the routine examination of the urine of patients ill with other diseases, or in the examination of applicants for life insurance, or other certificates of health, when finally, after a number of years, the disease does not produce symptoms, they are usually of such a nature that they are likely, for a time at least, to be attributed to disease of some organ other than the kidney. Thus while the patient may present himself to his physician with the idea that he is suffering with diabetes on account of the large quantity of urine that he voids, he is just as likely to complain of dimness of vision. The consequence of albuminuria neuroretinitis or of one of the many manifestations of chronic uremia, such as dyspnea, asthma, gastrointestinal derangements (gastric catarrh, gastric hemorrhage and diarrhea), or headache, hemicrania, tinnitus aurium or vertigo, or pains in the muscles or joints or eczema, or palpitation of the heart and precordial distress, or the patient in apparently good health, may suddenly develop a severe and even fatal attack of cardiac failure, pass into uremic coma and die.

Revealing itself thus in different ways, the diagnosis of chronic interstitial nephritis depends on the results of an examination of the urine and of the cardiovascular apparatus, and in view of the oftentimes slight evidence in the urine of renal disease, the cardiovascular lesions assume considerable importance. The clinical evidence of the cardiovascular lesions consists of hypertrophy of the heart, especially the left ventricle, accentuation of the aortic second sound and of increased arterial tension.

The changes in the pulse are of great diagnostic value. In the early stages of the disease, the arteries being contracted, the pulse is small; the internal pressure being increased, the arteries resist compression and flattening; on account of the internal pressure and the contraction of the vessels, the pulse waves are small. The pulse is hard and resistant to the palpating finger. The artery remains persistently full between beats (this is the characteristic feature), and considerable pressure is required to obliterate the pulse. Later to this is added the evidence of arteriosclerosis and later still the more characteristic changes of atheroma.

As I have said before, the existence of these cardiovascular changes and the kidney lesion may for a long time remain entirely unknown to the patient and be unsuspected by the physician. So long as the heart continues to perform its increased work will no symptoms occur. Should, however, the increased quantity of the urine, or the development of slight swelling about the eyes or ankles attract the patient's attention, or should he suffer epistaxis (usually of serious moment), or from dimness of vision or from severe muscular cramps in the calves of the legs (which are quite common), or from any of the symptoms of chronic uremia, inquiry on the part of the physician may elicit the information that for months, possibly years, excitement and exertion have been productive of breathlessness and palpitation of the heart, but having an obvious cause they were regarded as of no particular significance. As the disease advances, however, the nutrition of the heart no longer keeps pace with its enlargement, degeneration ensues and the evidence of embarrassed circulation results. It is now that symptoms referable to the cardiovascular system dominate the clinical picture. To the hypertrophy of the heart there supervenes dilatation, and to disease of the left ventricle is added disease of the right.

There results cardiac asthma, congestion and edema of the lungs, bronchitis, gastrointestinal disturbance, generalized edema and effusions within the serous cavities and alteration of the urine. The symptoms referable to the heart and lungs, at first transitory and nocturnal, become permanent, the other symptoms

mentioned are added, and if relief is not afforded, death ensues with cardiac failure or uremia, or both dominating the final scene.

So long as cardiac compensation is maintained, the diagnosis of chronic Bright's disease is evident from the results of an inquiry into the antecedents of the patient, the special etiological factors in the case, the different clinical manifestations and an examination of the urine and of the cardiovascular apparatus. Indeed, a diagnosis based on an increased arterial tension, accentuated second aortic sound and the physical signs of hypertrophy of the left ventricle will rarely be wrong.

The diagnostic importance of these cardiovascular alterations can not be overestimated. They are among the earliest clinical manifestations of the disease and they may be detected even in the absence of positive signs of kidney disease in the urine. If the case is not thus recognized early, or for any reason treatment is not instituted until a hard unyielding radial artery, accentuation of the aortic second sound, cardiac hypertrophy, impaired vision and uremic poisoning are present, the golden opportunity has been forever lost and the sclerotic process, it may be assumed, whether albumen and casts can be demonstrated or not, has likewise invaded the kidney.

At the suggestion of the chair, as the two papers were so intimately related, the discussion of Dr. Calhoun's paper was deferred till after the reading of the next paper on Urinalysis by Dr. J. W. Dreyer, of Aurora.

#### URINALYSIS IN DISEASES OF THE KIDNEY.

JOHN W. DREYER, B.S., M.D.

AURORA.

Our present knowledge of the urine and of diseases of the urinary organs may be said to be altogether abreast of other departments of scientific and practical medicine. All of us must confess, however, that he who attempts to make his laboratory findings harmonize with the classical text-book descriptions of renal disorders is prone to meet with some rather embarrassing if not disastrous disappointments, as there are many exceptions to the rules laid down for the differential diagnosis of kidney diseases by means of the urinary findings alone. This fact has been especially well emphasized and brought prominently before the observant members of the profession by Cabot in an article published March 18 and 25, 1905, in *The Journal A. M. A.*

In a long list of tabulated cases of renal disorders where the diagnosis was made during life by urinalysis and later verified by autopsy, a marked discrepancy occurs and the question he asks, as any fair-minded man must, is this: "Is urinary examination a sure means of determining the actual renal condition?" His conclusion is that it is not. Somewhat of a shock to us, is it not? However, in looking over his table of cases, one sees that in every instance where postmortem revealed a lesion of the kidney, there was some abnormality of urine during life. Therefore, it is only a fair assumption that the error in diagnosis is not altogether the fault of the laboratory man, but rather lack of knowledge in properly interpreting what was before him.

Urinary abnormalities as they present themselves are either chemical or microscopical. Under the chemical head come in order of frequency, albumin, sugar, acetone, diacetic acid, variations in urea, and if we wish to be more technical we must include such substances as give the Diazo and indican reactions. Microscopically we deal with casts, epithelial, blood, leucocyte and pus cells and bacteria, together with variations of the inorganic deposits and rarely leucin, tyrosin and fat droplets.

Of the chemical substances albumin is the most frequent, and for convenience I shall group its occurrence under the following heads:

First—It is present in practically all renal lesions, except a small per cent. of interstitial nephritides.

Second—In the great majority of acute infectious diseases and conditions of hyperpyrexia, and giving us the so-called febrile albuminuria.

Third—Changes in the chemical constitution of the blood as purpura, scurvy

and leukemia; or, on account of abnormal substances circulating in the blood, such as poisoning due to lead, mercury, ether, chloroform, turpentine, cantharides, carbolic acid or similar irritating substances.

Fourth—Circulatory disturbances, such as passive congestion due to cardiac, pulmonary or hepatic lesions, or pressure from tumors or a gravid uterus.

Fifth—Those cases of cyclic, or as they are sometimes called, "physiological" albuminuria where albumin occurs after exertion or the ingestion of excessive amounts of proteids.

Sixth—In disturbances of the nervous system. Under this head I would class certain forms of hysteria, apoplexies, migraine, tetanus, sunstroke, and coma due to head injuries, because in many of these cases an albuminuria occurs which disappears when the more prominent clinical conditions disappear. It seems a fair presumption to assume that in these conditions there is a lack of nervous control of the kidney function. It is questionable, too, whether some cases of albuminuria following narcosis may not fall under this head.

Seventh—Finally we have those cases where the albumin is of extrarenal origin, and usually due to pus, mucus, or semen.

Pus in the urine may mean much or little. It may be from the kidney, ureter, bladder, prostate, or urethra, or be entirely extraneous to the urinary tract, as in vaginal discharges, pyosalpings, or even appendiceal or perinephric abscesses. The different sources of pus scarcely falls in the scope of this paper, yet we may say that, as a general rule, the pus of renal origin occurs in acid urine and is smaller in amount than when from other sources.

Sugar is, of course, a constant occurrence in diabetes, but in rare cases it may be found after the ingestion of an excess of starches or carbohydrates without the occurrence of true diabetes. Very seldom, too, it may be found after head injuries and convalescence from some of the acute febrile diseases.

Lactose, which may be mistaken for sugar, is usually transient and occurs in the urine of nursing mothers when the breasts first fill. Acetone and diacetic acid are at times present in diabetes and their occurrence is usually of grave import.

Indican is the result of putrefactive changes somewhere in the body. Its presence may signify an obstinate constipation or it may mean an internal abscess, such as a pulmonary gangrene or an encysted empyema.

Urea is the end product of proteid metabolism and represents about 85 per cent. of the total nitrogenous output, the remainder being represented by xanthin, hypoxanthin nuclein bodies and uric acid. Its amount is conceded to be the best index of renal efficiency if considered along with proteid intake and bodily activity.

Of the microscopical elements casts are of the greatest importance. Several views are maintained as to the formation, but the one usually accepted is that they are due to the coagulable elements of the blood gaining access to the urine by reason of some pathological disturbance of the renal tubule, and that detached portions of these tubules become entangled in this material, thus giving rise to the different varieties depending somewhat on the character of the disturbance as well as the condition of the renal epithelium. Thus we have those casts formed of the anatomical elements, as epithelial, blood or leucocyte casts, and those others from the broken down elements as pus or granular casts, and finally the hyalin probably from those tubules with little if any normal epithelium.

Leucocytes and epithelial cells are normal occurrences when not abundant, large numbers indicate some inflammatory disturbance, and what has been previously said about pus applies here with equal force.

As to the bacteriological findings, the tubercle bacillus is of the greatest import, and while it may be difficult to demonstrate in a tubercular kidney its presence is diagnostic.

Fussell, in *The Journal A. M. A.*, July 28, 1906, gives a study of 1,666 routine urine examinations and finds some abnormality in 20 per cent. This practically agrees with a series of 1450 of my own. Obviously then, routine urine examinations are of value if one out of every five studied is abnormal. But finding an abnormality, are we to conclude that our patient has Bright's disease? I do not believe that the facts warrant the assumption, and as Cabot remarks, Bright's is possible with-

out casts or albumin, though some abnormality will be present, and Purdy insists that even in the exceptions, casts and albumin will be found if the search for them is made day after day. And therein lies the key to the whole situation. Systematic and thorough examination day after day, if need be, in conjunction with the clinical study of the case. If this is done, then the abnormalities as pointed out above may become of some value, and may be grouped conveniently under the following heads:

First—Those cases which show traces of albumin and perhaps casts, which if followed up clinically are of no pathological importance. Under this head come the cyclic albuminurias, the neuroses and the hemic changes.

Second—The albuminurias of pregnancy occurring in 5 per cent. of all primiparae, and possibly accompanied by casts. Here, possibly, some renal lesion may actually exist.

Third—Febrile albuminuria. Here again the process may border on an acute nephritis and be accompanied by casts, changes in specific gravity, total twenty-four hour quantity and urea output, and indicating serious trouble.

As an example, allow me to mention a case of pneumonia where the above were the findings and two months later the patient died in uremic coma. The same thing is frequently seen with scarlet fever.

Fourth—Those cases showing acute nephritis with increased specific gravity, diminished urea and scanty twenty-four hour quantity; also albumin; and casts of all varieties. Here a urinary analysis clears up the diagnosis before the clinical symptoms may be manifest.

Fifth—Those cases where the total quantity is markedly increased, specific gravity low, but total solids and urea normal and no other abnormalities. Such cases fall under the head of diabetes insipidus, the neuroses, or may follow injuries.

Sixth—Abnormalities in twenty-four hour specific showing increased quantity, low gravity, diminished total solids and urea, and perhaps, but not necessarily, presenting albumin and casts. This is the picture in interstitial nephritis or in those cases of arteriosclerosis where the kidney has undergone cirrhotic changes.

Seventh—Abnormalities as they occur in cardiac or hepatic cases, at first probably due to a passive congestion upon which a true nephritis later becomes engrafted, as evidenced in the occurrence of albumin and casts with blood cells. Here at first the quantity may show no change and the urea be normal, but later variations occur in these.

Eighth—Those cases developing nephritis during chronic illness and showing typical urinary findings as we see in tuberculosis, for example.

Ninth—The finding of sugar, usually diagnostic of but one thing. Here I desire to mention a case presenting albumin, casts, semen and sugar, certainly the urinary findings of a grave diabetes. I learned upon following up the history of the case that it was a head injury, and in the course of a week all of the abnormalities cleared up.

Tenth—Those cases presenting inflammatory lesions somewhere in the genito-urinary tract as previously pointed out under the heading of pus.

It is in these cases that urinary examination becomes of immense value as a means of differential diagnosis, not only of the different anatomical divisions of the urinary tract itself, but in other organs. With the present means of segregation and the cystoscope, the source of pus should be an easy matter to determine.

To show the value of urinalysis as a diagnostic aid, I wish to digress just for a moment to cite two cases:

CASE 1.—Mrs. W., aged 59, seized with severe pain in the right hypochondrium, chills, fever, elevation of temperature. Examination revealed rigidity of right rectus and tenderness about gall-bladder area. Provisional diagnosis cholecystitis. Urine showed an acid reaction. Albumin, specific gravity normal, microscopically pus, some casts, renal epithelium. Revised diagnosis, pyonephrosis, later confirmed by surgical intervention when a large abscess was evacuated and fifty-three calculi escaped.

CASE 2.—Mrs. W., aged 35, seized with a pain in right side, chills, fever,



elevated pulse, rigidity of right rectus and tenderness just above McBurney's point suggestive of peritonitis, probably due to an appendicitis. Urinary examination revealed an acid urine containing albumin and pus, with occasional casts and some renal epithelium. Diagnosis of pyelitis confirmed by clinical test when symptoms disappeared and urine cleared up under active exhibition of urinary antiseptics.

These two cases, with one previously mentioned, illustrate the value of a careful scrutinizing urinalysis in conjunction with a careful clinical study of the case. The diagnostician has not done his full duty until then, and not till then does urinary examination become of its greatest value. Nor is it sufficient to be satisfied with an occasional test for albumin, but to reap the full benefit we must make our analysis complete, getting the total quantity, studying the urea output, search for microscopical findings, and then fit in our data thus gained with the clinical picture. If this is done, then urinalysis needs must stand at the head of all laboratory methods of diagnosis to-day. And in conclusion I cannot urge too strongly the early formed habit of routine careful urinalysis.

#### DISCUSSION.

The discussion, which was participated in by Drs. Bridge, Tapper, Burlingame, Slate, DeWitt, Hindman, H. L. Pratt, Van Patten, Pelton, Richardson, Abbott, Stealy, and Allen, showed the general opinion of the society to be that physicians are too apt to base their diagnoses and prognoses on the clinical findings alone and leave out of the consideration the personal equation of the patient, his environment, temperament, heredity, arterial changes, etc.; that no rule of diet applicable to all cases can be laid down, but that each case is a law unto itself and should be studied individually; that many examinations of the urine should be made before making a diagnosis; that the percentage of albumin, especially in old cases, is no criterion for a prognosis; that patients sometimes surprise their physicians by recovering from rather grave conditions; that physicians should, even in the most hopeless cases, do all possible to alleviate the symptoms and prolong life and keep the patient from falling into the hands of the quacks and patent medicine fiends, and also take the time and trouble to instruct the laity so that the public would not be deceived by the newspaper diagnoses of kidney diseases flaunted before it. Many cases were related illustrating the various points made, including some unusual causes of apparently grave kidney trouble. A series of six cases was reported of unsuspected Bright's disease discovered by retinal examination and showing the average length of life thereafter to be about six months; also two cases where unfavorable prognosis, based on retinal changes, proved erroneous.

Under the head of new business Dr. MacDonald inquired what was the policy of this society regarding contract practice; he stated that members of this society had made contracts to take care of the members of certain organizations for a certain sum per month per member (usually \$1). President Fitts thought the matter belonged among the duties of the board of censors; Dr. Scott thought there should be an amendment to the constitution to cover the matter. Dr. Campbell asked for a definition of contract work and Dr. Scott replied that when a physician agreed to take care of a society or body of men for so much per head, or made lump sum insurance examinations, he was doing contract practice. Dr. Rutledge stated that according to that he did nothing but contract practice. Dr. Bridge said that while there might be some difference of opinion about borderline cases, there were several phases of work that all would agree was contract practice. President Fitts thought the making of more laws was of no use as it depended much on the grade of intelligence of the patient whether he employed the Indian doctor or the educated physician. Dr. Tapper believed the fee bill should be maintained. Dr. Pelton thought the society should take some action in order that the board of censors should know its sentiments. Dr. Scott moved that the chair appoint a committee to consider the matter and bring in a report for the society to act upon at the next meeting. The motion was carried and the chair appointed as such committee Drs. MacDonald, Rutledge and Pelton.

The society then adjourned to the banquet room where they were joined by the ladies and spent a very pleasant two hours or more, interspersed with music and toasts.

GEORGE F. ALLEN, Secretary.

### MACOUPIN COUNTY.

The Macoupin County Medical Society met in the Masonic Reading Room, July 23, at 10:30 a. m., with Dr. William Gross of Gillespie in the chair. Those answering to roll call were: G. E. Hill, Girard; L. H. Corr, J. P. Denby, C. J. C. Fischer, J. C. Matthews, J. Palmer Matthews, J. H. Davis and F. M. Wood, of Carlinville; E. B. Hobson, J. N. English, Chas. D. King, Wm. Gross, Gillespie; H. A. Pattison, F. A. Renner, Benld; Dr. J. J. Suik, St. Louis, Dr. Adolph Knobbe of St. Louis, and Dr. Frank Norbury of Jacksonville were the guests of the society.

Treasurer's report showed a deficit of 50 cents from last report, but the receipt of \$1.00 initiation fee leaves a surplus of 50 cents. Dr. Gross proposed the following names for membership and being acted on favorably by the committee they were, on motion, elected members of the society: David S. Bley, Staunton, graduate of Jefferson Medical College 1875; A. H. Hunter, Marion Simms-Beaumont, Staunton, O. F. Allen, Rush, 1900, Mount Olive; C. S. Ambrose, P. & S., St. Louis, 1904, Mount Olive; W. G. Auer, University of Michigan, 1901, Staunton. The same favorable action was taken on the applications of Drs. Robert E. Bley, Jefferson, 1877, Bunker Hill, and Dr. Knoop of Chesterfield.

Dr. Gross then delivered a short salutatory address in which he wished that the members should devote some time to original research, and report on the subjects near to his heart: 1. Opsonins and Vaccine Therapy. 2. Origin of the four cardinal temperaments, and their relation to disease, viz., Nervous, Sanguinous, Bilious and Phlegmatic. 3. Electrons and their relation to human life.

The Board of Censors reported Carlinville as the next place of meeting, on the fourth Tuesday in October. Essayists: Drs. Aubusson, J. P. Denley and J. S. Collins, on Disease of the Rectum.

Dr. Wood presented a child with the heart on the right side. Auscultation reveals the apex beat inside the nipple line in the fifth right intercostal space.

Dr. Suik reported an operation for the radical cure of ventral hernia. Photographs were exhibited of the case showing obliteration of the sac and closing of the incision into the rectus abdominis by first intention. He also reported a case of contracted pelvis. Antero-posterior diameter of  $2\frac{1}{2}$  inches, and an hour-glass contraction of the internal ring. This condition called for Cesarean section and hysterotomy, preceded by futile efforts with the high forceps and cranio-elast. The results were satisfactory to the patient and the case stands with Dr. Jaggards, Cesarean section, annually presented to the students of the Chicago Medical College as a triumph in modern obstetrics, evolved from the teachings of the great Semelweis of strict aseptic midwifery. A vote of thanks was extended to the doctor for his extended reports.

Dr. Denby reported a case of lymphosarcoma in a child found by making a microscopical examination of soft tissue removed by operation from a growth in the glands of the neck. In the discussion Dr. Norbury reported a lymphosarcoma of the testicle in a child. Dr. Suik spoke of a similar condition in the tonsils of a young woman which after extirpation and x-ray radiation extended to other glands by metastasis.

Dr. Norbury gave a classical description of Graves' disease with tachycardia, tremor, exophthalmos and enlarged gland. He asked if the members found the disease more prevalent in their locality now. The general opinion was that the disease is quite prevalent and many cases were reported, but was this not due to the revival of interest in the treatment by the new remedies, thyroidectin and organotherapy?

The afternoon was devoted to the reading of three very interesting papers: Dr. Noble of St. Louis read a paper on

### SYMPATHETIC INFLAMMATION OF THE EYES

(Abstract.)

Iridocyclitis, an inflammation of the iris and the ciliary body, are prone to extension to the other eye by sympathetic inflammation or irritation extending through the sheath of the optic nerve. A foreign body may start an acute iritis and a plastic iriditis will cloud the field of vision and by shrinking of the fibrinoplastic exudate cause excruciating pain in the ciliary nerve. Adhesions bind the iris to the cornea, causing a shriveled lens, which will act as a foreign body. Ciliary body is an elaboration of the choroid coat around the iris. If you place a 2 per cent. cocaine solution in the affected eye you will secure a severe pain on pressure with a pointed probe on the ciliary body. An inflammatory exudate into the anterior chamber takes place in iritis. In cyclitis we have cloudiness, also in the vitreous or posterior chamber, where floating particles can be observed by the ophthalmoscope on slight movements of the eye. An adhesion takes place between the iris and ciliary body and the lens becomes involved in a pseudo membrane formed behind it. A shrinkage of this tissue diminishes the anterior chamber, favored by a detachment of the inner membrane of the choroid and the retina. This shrinking membrane explains the irritation and severe pain present in the ciliary nerves. Causes are:

1. Anterior synechia, an attachment of the iris to the cornea, with irritation of the ciliary body.
2. A shriveled-up lens acting as a foreign body.
3. Penetrating foreign bodies.
4. Penetrating wounds close to the ciliary body. Cataract operations where the iris has healed into the scar.
5. Spontaneous cases due to intercurrent diseases (albuminuria).

The only treatment is enucleation, because the presence of the injured eye is a continual source of danger to its fellow. The cosmetic effect of an artificial eye is much better than a shrunken, blind one.

Dr. F. A. Remer, of Benld, read a paper on

### INFANT FEEDING.

(Abstract.)

The question whether a child shall be strong and robust or a weakling is often decided by its food during the first three months of its life. The problem is not simply to save the child's life during the perilous first year, but to adopt those means which shall tend to the healthy and normal growth of the child. The statistics of all localities show that the highest mortality of life is during the first year. In Illinois about one-fifth of all who are born die during the first year. In large cities this has been increased till the mortality reaches one-third. One-fifth of all deaths among infants occur during July. Hot weather in itself does not kill babies. Deaths are chiefly due to effects of hot weather on the food. Digestive disorders are the chief causes of death, due to improper food and inability to digest and assimilate it.

Conditions precluding mother's milk are when she is suffering from tuberculosis, nephritis, convulsions, severe hemorrhage, chorea, sepsis of any kind, epilepsy, enfeebled health and women without milk. Intervals of feeding should be regulated with systematic hours; the intervals depend somewhat on the strength and condition of the baby. Weigh the child often to find the true condition. The minimum increase for the first six months should be four ounces per week. If the child is fretful and sleepless, the mother's milk is insufficient. Begin mixed feeding, that is, give the bottle in addition to the breast. If the specific gravity is below 1.015 or below 2½ per cent, cream the milk is insufficient to nourish the child. If milk is too rich, diminish nitrogenous foods, prohibit alcoholics and recommend fresh air and exercise for the mother. If the

quality is good but insufficient in quantity massage the breasts 3 or 4 times daily. Poor quality and quantity calls for malt extracts or liquors; massage breasts, iron tonics and increase of nitrogenuous foods. Plenty of good milk at meal time and between meals is good for the mother.

The condition of the milk is often the cause of either diarrhea or constipation. White stools indicate excess of fats or casein or a deficiency of bile. Red stools may be due to extravasation of blood into the intestines. If from upper portion will be darker. If mucous is mixed with blood, may come from colon (colitis). Black stools may be from drugs, as bismuth subnitrate or blood. Green stools may be from infection or improper feeding. Constipation may be due to too low percentage of proteids or fats. Grass green stools are due to too much sugar, which may cause cruetation of gas and excoriation of buttocks of child. Artificial feeding is often necessary to save the child. Try and secure a mixture as near the milk of the mother as possible, corresponding to the age of the child. Crying is perfectly natural to a healthy baby. Do not nurse too often and not when mother is tired and exhausted, as these conditions, with fright, grief, anger and passion have caused illness of child. Many do not care to nurse the child for the first four or five days. Insist on the opposite! During this period, even though the secretion of milk be scant, the infant should be put regularly to breast, as the nursing is beneficial to both mother and child.

Dr. Norbury's paper was on the

#### CARE OF THE INSANE.

(Abstract.)

Insanity is defined as a mental disorder due to some constitutional disorder. The study of the pathology has been made by four institutions in the United States. Dr. Adolph Mayer, formerly of Illinois, now of New York, is the best authority. At Ann Arbor, Mich., Massachusetts and Washington, D. C., special work is being done in the pathology of the insane. In the study of psychomental disorders mind has sensation, ideation, perception, memory and emotion. Clinical psychology is studied in sociology. Psycho-physics embraces sight and hearing. The science of nutrition has hereditary perversions, blood dyscrasias and tissue changes, due to autotoxemia, Bright's disease, diabetes, hyperthyroidization, chronic appendicitis and arteriosclerosis. These all have influence on secretions and excretions. The brain influences nutrition and perverted nutrition acts on the brain. Degenerative toxemias produce dementia precox and an adolescent mental disorder. In the state hospitals cases are treated in groups and so individual cases can not be cared for as well as in private practice or by the family physician. Senile cases should not be taken to the hospital. The associations of home and neighborhood do them good, while the hospital surroundings breed delusions of persecution. Juvenile cases, incorrigibles are essentially nervous and should be isolated and their nerves quieted. Legal rights of the insane may demand commitment when they are not clinically insane. The Packard law, originated by a paranoiac, was incorporated into the State Constitution of 1848, which says that no person can be committed for detention in an asylum except "by a jury of his peers."

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#### MORGAN COUNTY.

The Morgan County Medical Society held its regular meeting at the Library on July 11, 1907, at 8 p. m., President Dr. E. L. Crouch in the chair. Eleven members present. Dr. Black reported having received an invitation by the Adams County Society for August, when they expect to join with Pike County and Hannibal Society to visit the cave made famous by Mark Twain and dine at the Mark Twain Hotel. He suggested an outing for the society might be a good thing, taking wives and sweethearts. Dr. Black moved a committee of three be appointed, including the chair, with power to act in this matter. Drs. Black, Bowe and Crouch were chosen.



Dr. Adams reported an Enucleation of an Eye injured by a giant cracker. The eyeball was ruptured under the conjunctiva, through the sclera. The tear was 8 mm. long and 5 mm. from the cornea. Vision was reduced to light perception. The nose and upper eyelid were also wounded to a considerable extent.

Dr. Day reported meeting at Atlantic City of the A. M. A. In the surgical section was reported two methods of treatment for ununited fractures. First, by injecting blood between the broken ends. Second, was by injecting dilute hydrochloric acid. He attended the surgical section mostly and enjoyed it very much and thought Atlantic City an ideal place for such a meeting.

Dr. Milligan thought the meeting well worth the time and trouble, especially to hear and see the leaders of thought in the profession. She enjoyed Dr. Bryant's presidential address and quoted from it, showing the lack of endowments for medical as compared with theological colleges and students.

The best discussions were on familiar topics, as, Treatment of Malnutrition, by Dr. Koplie, and Exophthalmic Goitre, by Dr. Kocher, and pure food discussion in section of Hygienic and Sanitary Science.

Dr. Black reported progress on the health ordinance, stating another ordinance had been prepared by our committee and the committee from the council, which included the mayor as a member of the board.

Dr. Black reported three cases with reference to abdominal pain as a diagnostic symptom. In all three cases the location of the pain might be entirely misleading in making the diagnosis.

Dr. Hardesty reported two recent cases of parturition, one primipara and one multipara, both L. O. P. position.

Dr. Bowe spoke on examination for life insurance and thought there was much fraud connected with these examinations. The companies on their first legs and those on their last legs do not want straight examinations.

Dr. Bartlett thought methods had changed in the last ten years, that the district agent had too much influence in making decisions.

A. L. ADAMS, Secretary *pro tem*.

#### RANDOLPH COUNTY.

The Randolph County Medical Society met in regularly quarterly session at Red Bud, July 9, fifteen physicians being present. The meeting was called to order by the president, Dr. H. C. Adderly, of Chester. Drs. Gault, Dinges and L. J. Smith were appointed a Board of Censors. Motion was made and carried unanimously that the effort to induce all physicians of Randolph County, whether members of this society or not, to adhere to the five dollar fee for making old line insurance examinations be continued. Dr. Perry M. Little of Willisville was elected a member. The following program was rendered: Summer Complaint, by Dr. T. Riess. Pharmacopeia and N. F., by Dr. H. A. Dinges. Glaucoma, by Dr. J. M. Ball. Extra Uterine Pregnancy, Dr. J. C. Murphy. Resection of Gut, by Dr. A. H. Meisenbach. After the scientific program was concluded Dr. C. G. Smith entertained the society.

#### SANGAMON COUNTY.

The Sangamon County Medical Society held its regular monthly meeting April 8, 1907, in the Lincoln Library, Springfield, Illinois, at 8 p. m., Dr. A. D. Taylor presiding. Twenty-five members were present. The following program was presented. Etiology of Typhoid Fever, Dr. S. E. Munson. Symptomatology and Diagnosis, Dr. B. B. Griffith. Treatment of Typhoid Fever, Dr. C. M. Bowcock. A case of infection with *Anthomyia Canaliculans*, Dr. H. C. Blankmyer. Dr. I. W. Metz was elected censor to fill out the unexpired term of Dr. G. W. Riee of Cantrall, removed. Dr. Fred Wheeler and Dr. J. D. Salyers were elected to membership.

A special meeting in April of the Sangamon County Medical Society was held in the Lincoln Library, Springfield, Illinois, at 8 p. m. The meeting was called

by the President at the request of Dr. L. C. Taylor, C. M. Bowcock, Walter Ryan, S. C. Munson, B. B. Griffith, C. W. Compton, H. A. Asehauer, A. L. Hagler and G. N. Kreider to consider the appointments of city physician and City Health Commissioner. A. D. Taylor, the presiding officer, moved that the subject of Health Commissioner be first considered.

Moved that the Sangamon County Medical Society indorse Dr. H. C. Blankmeyer for the position of Health Commissioner of the City of Springfield.

The following resolution was adopted:

*"Resolved*, That the Sangamon County Medical Society hereby indorses to His Honor the Mayor, Dr. H. C. Blankmeyer for the position of Head of the Health Department of the City of Springfield. If this appointment be made, the society feels that this department of the city's affairs will be properly administered and if supported by the administration, many necessary reforms for the city good will be secured."

Moved that this resolution be signed by the members of the Sangamon County Medical Society, present, and that a signed copy be sent to the Mayor of the City of Springfield.

Moved that the Board of Supervisors of Sangamon County be requested to appoint the city physician as in past years and that Dr. Stanly Castle be indorsed by this society and that Dr. Castle, in view of his election, divide the county hospital cases equally between St. John's and Springfield Hospital.

Moved that a petition be signed by the members of the Sangamon County Medical Society present at this meeting covering these points and that this petition be forwarded to the chairman of the Board of Supervisors.

The Sangamon County Medical Society held its regular monthly meeting in the Lincoln Library, Springfield, Illinois, May 13, 1907, at 8 p. m. Dr. Ottis presented a paper entitled The Importance of Surgery of the Stomach and Duodenum relative to Gastric Ulcer and Carcinoma. Moved that the President of the society act as delegate to the State Society meeting at Rockford. Moved that Dr. Griffith act as alternate. Moved that the delegate be instructed to use his influence to have the Illinois State Medical Society hold its meeting in Springfield in 1908. Moved that the president appoint a committee of three to revise that part of the city code relative to the health department. Drs. L. C. Taylor, Palmer, and Griffith appointed. Moved that Dr. L. C. Taylor be extended a vote of thanks for work done on the legislative committee of the State Society.

The Sangamon County Medical Society held its regular monthly meeting in the Lincoln Library, Springfield, June 10, 1907, at 8 p. m. No program was presented on account of the absence of Dr. Speier, who was to have presented a paper on Diarrheal Diseases of Children. Report of Delegate to State Medical Society. Bills aggregating \$28.70 as follows: Postage, \$4.50; janitor, \$8; printing, \$12.85; Hollister Memorial Fund, \$3, and typewriting 35 cents were presented and allowed. The society takes a vacation during July and August.

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#### STEPHENSON COUNTY.

The third quarterly meeting of the Stephenson County Medical Society was held at the Court House in Freeport, on Thursday, July 11, 1907. Dr. M. M. Baumgartner, president, in the chair. Members answering to roll call were: Drs. Arnold, Clark, Baumgartner, Bobb, Burns, Esp, Brockhausen, Mease, Morrison, Moore, Rideout, Rosensteil, Stealy, Smith, Snyder Thompson. The following program was listened to: Illinois State Medical Society Meeting, Dr. K. F. Snyder; The Opsonic Index, Dr. A. E. Smith; Dubuque Medical Society Meeting, Dr. B. A. Arnold; The American Medical Association Meeting, Dr. J. H. Stealy; A Tour Through Europe, Dr. W. J. Rideout. A very entertaining résumé of the proceedings of the A. M. A. and Illinois State and Dubuque Medical Societies was given by Drs. Stealy, Snyder and Arnold.

Dr. A. E. Smith gave a detailed account of the theories regarding opsonins and their practical application. It was the doctor's belief that it would be well to obtain the opsonic index from some of our local physicians relative to their

idea in the advancement of the medical profession as a whole, but he was afraid that if their conspicuous absence at medical meetings generally count as any criterion to go by, it would be found to be very low indeed. The doctor told of the very interesting and instructive papers read at the Rockford meeting of the state society, and at the Atlantic City meeting of the A. M. A., especially those relative to opsonins. He said that it was his belief that the doctor who will take the necessary time to attend his local society, the State and National medical meetings, is not only a better doctor for the patients he cares for, but a better man in the profession at large.

The annual election of officers was held and resulted as follows: President, Dr. Karl F. Snyder; vice president, Dr. A. E. Smith; treasurer, Dr. D. C. L. Mease; secretary, Dr. J. Sheldon Clark; censors, Dr. A. E. Smith, Dr. W. B. Peck, Dr. R. J. Burns. Our treasurer, Dr. Mease, was able to report every member in good standing.

#### SOME MEDICAL SNAPSHOTS.

W. J. RIDEOUT, M.D.

FREEPORT, ILL.

Our most honored president has ordered me to give an account of myself during my recent absence from Freeport. When he modified this order by saying I didn't have to tell everything, I consented, but upon reflection I realized what a difficult task I was undertaking in attempting to give an account of my trip that would be interesting and at all worth while from a medical point of view.

In the first place, my studies and observations were in the main confined to eye, ear, nose and throat, subjects that may not interest you all, and secondly other physicians in our community have spent more time in Europe and their observations, medically, were not limited to so narrow lines as my own, so that I fear what I may have to say will seem (to them at least and probably to you all) very much like a little side skirmishing on the right or left flank, when the result of an attack from a broad and bold front is most to be desired. However, I have undertaken to mention a few of my medical observations, but should I digress, kindly remember that it usually takes a little time to get over a wandering habit.

After taking leave of Uncle Sam the first medical experience one usually encounters is a seance with mal-de-mer, and, by the way, it's no joke. Subjective symptoms: Sensations as if stomach was a large toy balloon, held by a string and trying to escape, and patient usually accommodates himself as to position quite in keeping with the efforts of the balloon. However, after it is all over, one feels quite renovated, develops a wonderful appetite and with the exhilarating influence of the salt sea air soon acquires that degree of seamanship known among old salts as getting one's sea legs, and is able to promenade the deck in most any position it assumes from horizontal to a 30 or 40 degree slant. After this experience one does not wonder at the hearty, robust appearance of the average sailor boy.

But this is quite in contrast with the feelings of the few who remain ill during the entire voyage and if seen at all on deck or in the dining saloon look as if they had heard Gabriel's trumpet call and wished to go but couldn't.

The city of London is interesting in many ways. It is said to have more Irishmen than Dublin, more Scotchmen than Edinburgh, more Jews than Palestine, more breweries than Freeport, and over a hundred hospitals. Many of these hospitals are very large, some new with modern equipment and a few old timers with equipment almost in keeping with their age. In one old institution they were using kerosene lamps in the ear, nose and throat department, but by way of apology the professor in charge said that they expected to be in their new building within a few months and were putting up with many inconveniences until that time. In ophthalmology the Royal London Ophthalmic Hospital, otherwise known as Moorfields, offers excellent facilities to the student interested in that line of work. It is the largest exclusive eye hospital in the world and its clinics are in charge of some of the most famous men in the ophthalmological world of to-day. In otology, rhinology and laryngology the Golden Square Throat

Hospital (founded by Sir Morell MacKenzie in 1863) is an excellent place for clinical work; it has an out-patient attendance of 50,000 annually, besides a large in-patient enrollment, and, although both these places as well as other London hospitals I visited are attended by men of high position in the medical profession of to-day, and one can not help but admire the skill displayed by some of them, yet I can not say that I saw there or on the continent any greater medical or surgical skill in the line of work under observation than I have seen in Chicago, Philadelphia or New York. In other lines I am incompetent to venture an opinion; however, for the student some of the places have great advantages.

In Vienna, for instance, operative work both upon the cadaver and the living subject can be had under competent instructors (as much as you like, so long as you are willing to pay for it). Some of the professors make more money teaching than they do out of their private practice, which no doubt is one reason for their great efforts educationally; but, notwithstanding this and the great prestige they have held in the past, they are beginning to realize that America is not behind in medical advancement, and in many places the medical profession are giving our country considerable credit for what America's foremost men have contributed toward the world's advancement in medicine. However, there are still a few who are prejudiced in favor of their country and still retain the idea that anything worth while can come only from them.

London hospitals are nearly all supported by voluntary contributions. The charitable ones are attended by many more well-to-do patients than I have seen in the charitable hospitals in any other city. It is not an uncommon thing to see silk hats, Prince Albert coats, fine dresses and jewelry worn by many of those patients. This, of course, cuts in on private practice, as many who could pay attend the free clinics, where they receive good attention and are treated with as much courtesy and kindness as would seem possible to be shown patients even in private practice. This is quite different from the manner in which charity cases are handled in hospitals of some other countries. In some of the clinics in Vienna they are hustled about like so many cattle or sheep, and aside from the medical or surgical attention they receive very little consideration is given them. This I noticed to be especially true in the nose and throat clinics, where a little remonstrance on the part of the patient on account of pain or gagging provokes a violent outburst of passion on the part of the surgeon examining or operating, but the patients return again, more submissive than ever.

From a sanitary point of view, London is certainly at a great disadvantage. The famous London fog is decidedly unhealthy, and during the foggy season one soon appreciates the value of London's extensive public lavatory system, where he has an opportunity every few blocks to wash and brush up for a "tuppence." London's very narrow crowded streets and some of her very old buildings which are damp and poorly lighted certainly do not approach ideals of sanitary science, but as nearly all the buildings in England have the open fireplace, ventilation of the same may be considered as good. Spitting on the sidewalks and in public conveyances is rarely seen, even though their antisputting notices may not seem as forceful as our own. Where ours say, "No spitting allowed," or "Five dollars fine for spitting in this car," those in England and in some places on the continent read more like this: "On account of danger to public health, you are kindly requested to abstain from spitting on the floor or seats of this car." There are but few medical men (comparatively speaking) in England who have received the degree of doctor. Many noted physicians and surgeons that can wear the handle of F. R. C. P., or F. R. C. S., to the other end of their names are still Mister. A doctor is one who has attained an extra high degree medically or surgically and has also paid a very handsome fee (royally).

We usually profit by the mistakes we see others make as well as by our own. I have made plenty of them, and some of you also have possibly made a few, so it may not be amiss to relate one or two that I observed even though they were of minor importance. A noted London ear, nose and throat surgeon, who is connected with one of the prominent hospitals, is a strong advocate of radically



relieving chronic frontal sinusitis by obliteration of the sinus, through removal of its anterior and sometimes the inferior wall. In this particular case, in which the sinus was quite large and deep, after usual preparations, including shaving of the eyebrow, he made his then usual linear incision through the center of the brow. In this case he removed only the anterior wall. In completing the operation, on account of the depth of the cavity, the skin wound would not meet and was left to be filled in by granulation and dermatization. A short time afterward the patient presented the unusual phenomena of having two beautiful eyebrows, the upper nearly an inch above the lower. On account of the interest manifested in his appearance by his friends, the patient returned later to have the divorced brows remarried by a plastic operation. This surgeon now advocates making this linear incision just below the brow.

At another hospital an assistant surgeon had performed a radical mastoid operation upon a middle-aged man and desiring to line the bony cavity with skin, he turned a skillfully measured skin flap from the cleanly shaven integument back of the wound into the cavity. On account of the extreme pain and swelling, a few months after the first operation, I saw the surgeon in charge of this clinic open up the cavity and discover the cause of the trouble to be a luxurious growth of hair tightly packed in the cavity and distending all the surrounding tissue that was distensible. Removal of this excellently transplanted flap and substituting a Thiersch graft from the arm soon relieved the difficulty.

The old idea that the English are slow to see a joke may be true in a measure, but one meets exceptions to this rule, and some English people are, indeed, rather witty. These may have been reared on the western coast and early in life inhaled some of the breezes of the emerald isle. A cab driver was showing an American some of the points of interest as they drove along Holburn street. When they came to the viaduct the cabby remarked: "This is 'Olburn viaduct." "Say, my friend, didn't you drop something back there?" asked the American. The cabby was perplexed for a few seconds, but soon showed that he was equal to the occasion by replying: "'Pon my word h'I did, but h'I'll pick it hup hagain when we get to Hoxford street." The marvelous skill of the cab and bus drivers winding through throngs of vehicles and pedestrians which surge through London's narrow streets excite one's admiration, and a seat on the upper deck of a two-story bus, either horse or automobile, is a good position from which to view the part of the city through which one is passing, as well as to get the benefit of the best air they have. London fogs are not constant, and the air at times is quite breathable. Everything is all right when you are on the right bus, but one has to learn how to take them. Some are marked Epp's Coeca, Beecham's Pills, Bovril, etc., in very large letters that are readable a couple of blocks away. In fact, the buses are covered with medical and other advertisements with the exception of a small space in front and on each side left for the names of the streets through which this vehicle has to pass, and there are usually so many names that these must be in much smaller letters than the ads are, and one can't be quite sure until he learned better, if the destination of the bus he is taking is Bovril, Beecham's Pills, Picadilly or Elephant and Castle. Not only in London do the manufacturers of proprietary medicines take advantage of the buses and all other available advertising space, but many other European cities are similarly afflicted. Even the outside walls of the Great Vienna Hospital (The Allgemeines Krankenhaus) are literally covered with various kinds of advertisements. Soon after arriving in Vienna I had occasion to go to the office of Thos. Cook & Son, which is located in the heart of the city. A medical friend gave me instructions as to the best means of reaching the place. At a certain point in Alserstrasse I was to take an Odol bus, that went directly in front of this office. My friend had just made the same trip and knew what bus to take. I followed instructions, stationed myself at the proper place on Alserstrasse and soon saw a bus with the name Odol (O-D-O-L) in large letters on a large board across the top of the bus. Well, to make a long story short, I got back the same day, but learned that every bus in the city was labeled Odol, as well as many nicely wrapped bottles in the apothecary shops.

Many American nostrums are extensively advertised in Europe, but English ales, Scotch whiskeys, French wines and German beers have such a foothold in their respective countries that our friends Mr. Peruna Hartman and Mr. Cellery C. Payne have not found Europe a very profitable field for the adoption of their special blends.

Among the many interesting medical clinics in Vienna is that of Gersung's, otherwise spoken of as the paraffin clinic, or the wax works. So much has been said recently regarding the untoward after-effects from paraffin injections, such as blindness produced by retinal embolism and deposits of paraffin in eyelids and other portions of face, where not intended, that the practice has been abandoned to a considerable extent by many who practiced it a few years ago, but Gersung, who is a pioneer at this work and who has made, probably, more paraffin injections than any other man, claims that the untoward results are due to faulty technique. He eliminates danger of embolism by his method of first using Schleich's solution, which also served the purpose of local anesthesia. Two syringes are used and but one needle. After injecting the Schleich's solution with the small syringe, after a few seconds he withdraws the solution and notes if it is clear; while withdrawing the solution the needle is gradually moved backward and forward to be certain that it has not passed through a blood vessel. If the solution is not stained with blood he removes the small syringe, leaving the needle in situ and attaches the larger one, which contains the paraffin, at the proper temperature and consistency, and during the injection by careful manipulation and molding of the injected portions with the thumb and forefinger of the left hand he prevents the escape of the paraffin to parts not intended (until sufficiently hardened to remain where it is put), and at the same time molds the paraffin into the desired shape. In building up a sunken nose pure paraffin is used, and for other portions of the face a mixture of paraffin with olive oil. He claims to have never had a case of retinal embolism since having adopted this method and to have had no case of migration of paraffin to eyelids or other portions of face of any importance.

A great many Austrians suffer from rhinoscleroma. This disease is also quite prevalent in some parts of Russia; also in Central America, but fewer than twenty cases have been observed in the United States, and nearly all of those have been among Russian or Austrian immigrants, but very few cases have been reported as occurring in native Americans. The disease consists in a thickening and tumefaction of the nasal mucous membrane, causing sometimes almost complete closure of the nostrils and often invading the pharynx and larynx; it is due to a special bacillus, its progress is slow and by the time the patient's attention is drawn to it he is usually too far advanced with the disease to expect any permanent relief. And the treatment is only palliative; this consists in the passage of laryngeal bougies or dilators, where the larynx is invaded to keep the passage sufficiently open for the unfortunate patient to breathe, and so long as this is done with sufficient frequency the patient can live, as the disease does not menace life in any other manner. In the nose and throat clinics of Vienna one sees daily many of these unfortunates who come for the painful procedure of wearing a laryngeal bougie or dilator for an hour in order to have sufficient breathing space for a few more days. No treatment has yet been found that has any curative effect and all surgical procedures have been followed by a rapid aggravation and extension of the trouble.

There are many more medical items of possibly some interest that I might relate, but as my medical observations were almost wholly confined to London and Vienna, and, as I said before, were limited to a particular line of study and a very short period of time, the many broad gaps I have left between these few snapshots I have given you I will leave for others (who have been there for longer periods of time and whose observations were from a broader standpoint, medically speaking, than my own), to fill up in the discussions.

## WABASH COUNTY.

The Wabash County Medical Society held an interesting meeting July 23 at the office of Dr. G. C. Kingsbury. A paper was read by Dr. C. E. Gilliatt of Allendale, his subject being Cholera Infantum. Both papers were freely discussed by all physicians present. Dr. Sereno W. Schneck gave a very interesting report of the meeting of the American Medical Association at Atlantic City. Dr. Mercer was elected to fill the unexpired term of Dr. G. C. Kingsbury as secretary of the association, the latter resigning.

## WAYNE COUNTY.

The Wayne County Medical Society met at the office of Dr. D. A. Hilliard at Jeffersonville, Thursday, June 20, 1907. Dr. W. M. Johnson was elected chairman pro tem. The following named gentlemen answered at roll-call: W. M. Johnson, C. E. Johnson, C. O. Truscott, E. M. Cates, F. F. Davis, D. A. Hilliard, N. J. Hall, G. A. McDonald, J. E. Dixon and J. P. Walters.

Dr. F. F. Davis gave an interesting talk on The Cause, Prevention and Treatment of Summer Diarrhea in Children. His remarks were confined to the non-inflammatory diarrhea and a spirited discussion followed with considerable criticism on the part of some in regard to the use of opiates of any kind for diarrhea in children.

No regular adjournment was taken for dinner, but at the noon hour Dr. D. A. Hilliard invited us to the nearby dining room, where Mrs. Hilliard had a feast prepared for all present. The good ladies proved themselves equal to the occasion and course after course was served in an admirable manner. It was an enjoyable hour that will not soon be forgotten.

After dinner Dr. C. E. Johnson read an excellent paper on Enterocolitis in Children. The able manner in which he handled this timely subject was enjoyed and appreciated by all present. The paper was ably discussed by N. J. Hall, E. M. Cates and others. This disease is not so fatal in children as it was in earlier days. Then many of them died. Now it is seldom fatal, especially if the physician is called early. Every physician in the county should have heard this paper and the discussion.

The subject of inflammation was then introduced by Dr. W. M. Johnson, in reply to some remark made by Dr. J. E. Dixon, and a lively discussion followed in which Dr. Johnson and Dr. Dixon were the principals, and Dr. E. Cates and Dr. F. F. Davis also participated.

The secretary read a paper on The Drug Habit, which was discussed by Drs. Truscott and Dixon.

Dr. D. A. Hilliard gave an interesting talk on Infantile Colic. Remarks were made by nearly all present.

The principal paper of the afternoon was read by Dr. J. E. Dixon on Typhoid Fever. The matter was ably discussed by N. J. Hall, F. F. Davis, E. M. Cates and others.

After giving an unanimous vote of thanks to Mrs. Hilliard and her sister, Miss Hawk, for their royal entertainment during the noon hour, we adjourned to meet at time as arranged by the president and secretary.

## PROGNOSIS IN CHRONIC ENDOCARDITIS.\*

FREDERICK TICE, M.D.

CHICAGO.

The importance of an accurate prognosis in chronic endocarditis is not easily exaggerated, either from the standpoint of the patient or the attending physician. While it may have taxed to the utmost the diagnostic resources of the attending physician to determine the existing lesion, for which much credit is

\*Read before the West Side Branch of the Chicago Medical Society, May 16, 1907.

due him, it is of no interest whatever to the patient that he is the possessor of an aortic regurgitation, a mitral stenosis, or some other lesion. To him the only and all-important question is that concerned with the prognosis. Is he going to recover? How long must he be confined to his bed or to the house? When can he return to his business? As a patient, it is his privilege and right to demand such information, and the attending physician is in duty bound to supply such. Too frequently the subject is permitted to pass unnoticed or with the careless statement, "Oh, well, you know what heart disease means." So far as the physician is concerned, he must be able to determine the prognosis, and where no danger exists to inform the patient and in many instances relieve or diminish the anxiety and nervous tension which alone are capable of producing much cardiac disturbance. If real danger is present, the patient or near relative should be informed, in order that he may take appropriate care of himself, and perhaps conclude such business transactions as may be necessary for the welfare of his family. Then, again, to render a good prognosis where a grave one exists, or vice versa, may not always rebound to the glory of the physician, but produce the most harmful effect, especially if his reputation is not well established.

Before considering the factors concerned in arriving at a prognosis, it may be advantageous to mention the possible occurrence of sudden death in endocardial lesions. Among the laity and many members of the profession heart disease and sudden death are so intimately associated that the mere mention of one invariably suggests the other. When a patient is informed that he has heart disease, in many instances, he at once dreads the worst, and lives in constant fear of a sudden termination. The sudden death referred to here is generally expressed by such terms as "dropping down dead," or "found dead in bed." While comparatively sudden death may occur in any of the valvular lesions, and more frequently in myocardial involvement, in this form the patient has had practically no bronchitis, dyspnea, edema or ascites, but has been able to attend to his work, enjoying apparent health. In discussing the subject, Walsh remarks: "Taken as a group, valvular impediments can not fairly be cited as frequent cause of sudden death, but there is one among the number of which the tendency to kill instantaneously is so strong that the fact must always be borne in mind in estimating its prognosis, and that one is aortic regurgitation."

Broadbent, in a paper before the Harveian Society, gave as his opinion: "Sudden death is a contingency which may almost be left out of consideration in valvular diseases, except in aortic regurgitation."

In a review of the post-mortem records of St. Mary's Hospital, London, Sidney Phillips found, in 400 cases of cardiac involvement, that the endocardium was involved in 151. Of these 151 cases there were 38 with aortic regurgitation, 11 with aortic stenosis, 53 with mitral stenosis and 49 with mitral regurgitation. Sudden death occurred in 10, and in every instance the lesion was aortic regurgitation. According to Walsh, "the more pure and uncomplicated the regurgitation, the freer the heart from any other form of disease, the more likely is the individual to be cut off without a moment's warning."

The factors considered in estimating a prognosis in chronic endocardial lesions consist of the following:

I. An accurate diagnosis of the existing lesion or lesions.

Without this all further consideration and conclusions must be fallacious and absolutely without value.

While Corvisart (1806) employed percussion and auscultation and was the first to attempt diagnosis of heart disease, it was not until Laennec (1819), the discoverer of the stethoscope; Bouilland (1824), who employed accurate scientific auscultation; James Hope (1832), with his practical and clinical experiments; Stokes (1854) and Walsh (1862), with their clinical observations, had opened the way that an accurate diagnosis could be made. It is comparatively within only the last few years that anything like precision has been possible in this class of cases.

II. The relative danger or gravity of the lesion.



Observers are not agreed on this point, and the classification of the lesions is quite variable. Walsh, in a descending scale, places the various lesions in the following manner:

1. Tricuspid regurgitation.
2. Mitral regurgitation.
3. Mitral stenosis.
4. Aortic regurgitation.
5. Pulmonary stenosis.
6. Aortic stenosis.

Tyson also states: "The most unfavorable of all forms of cardiac valvular disease is tricuspid regurgitation, which occasions obstinate dropsy and dyspnea."

When we recall that tricuspid regurgitation as a primary lesion is rare, that it is almost always secondary to some pulmonary or left-sided heart lesion, it is difficult to understand why it should head the list.

While it is true that the appearance of a tricuspid regurgitation, with its train of symptoms and signs, so often marks the beginning of the end, such an event must be considered simply as a step downward in the process of cardiac failure, and the prognosis should be determined from the consideration of the primary lesion. The appearance of a tricuspid regurgitation, due to some left-sided lesion, indicates, if anything, the inability of the right heart to maintain a compensation.

Gibson, Broadbent, Babcock and many others arrange the lesions in the following manner:

1. Aortic regurgitation.
2. Mitral stenosis.
3. Aortic stenosis.
4. Mitral regurgitation.

### III. The stationary or progressive character of the lesion.

It is necessary to determine this point, for, if the lesion is stationary, the resulting dilatation and hypertrophy will or will not satisfy the demands of compensation, and we know with just what we have to deal. If the lesion is progressive, then there is but one issue. Fortunately, in many instances, the nature of the lesion can be determined by considering the etiologic factors:

#### (a) Acute Endocarditis.

When it can be established that the valvular defect is due to some acute infection, which has subsided, the defect remains small or great, depending on the damage done, and does not increase in amount. To this statement there is one exception—mitral stenosis, which is typically a chronic progressive disease.

#### (b) Chronic Endocarditis.

The unfavorable features of this group consist in its progressiveness. The valvular defects become gradually more pronounced and more extensive. The hypertrophy, which has been sufficient to meet the demands, is no longer able to keep pace with the increasing lesion, or perhaps the compensation is undermined by structural changes in the heart muscle. Then, too, chronic inflammation and degeneration of the endocardium usually occur at a time in life when compensation is imperfectly established, if at all. When a murmur is detected for the first time in a patient past middle life it is necessary to determine that it is or is not due to progressive degenerative changes by the presence or absence of symptoms and physical signs. If systolic and heard over the aortic area, it is usually due to some roughening of the aorta, a slight rigidity or irregularity of the valves; when systolic and heard over the mitral area, it may be due to rigidity of the valves, slight myocardial involvement and derangement of the valvular mechanism. Many patients possess such murmurs and live for years without any discomfort.

#### (c) Rupture of a Valve.

The aortic valve is usually the one involved, and is always a very serious condition. Under a high pressure a perfectly normal valve may rupture, but generally there is an associated degeneration.

#### (d) Dilation of the Orifice—Inorganic Lesions.

1. The aortic ring is strong, unyielding, and not easily dilated, but when it does occur there is usually a dilation of the aorta due to degenerative changes, or there may be an aneurysm. In such condition the prognosis is not good.

2. The mitral ring is easily dilated. When due to fevers, anemia, or temporary conditions, and under appropriate treatment, the prognosis is good. Frequently the dilatation is secondary to an aortic lesion, and when this is the case the prognosis is that of the primary disease.

#### IV. The degree of the lesion.

This is by no means easy to determine, but is highly important, especially when taken in consideration with the other findings. Factors which assist in determining the degree of the lesion, and the amount of circulatory disturbance in—

### I. MITRAL REGURGITATION.

(a) *The Murmur*.—Much difference of opinion exists concerning the value of the murmur. "No greater error can be committed than that of supposing the danger of valvular lesion may be estimated by the amount of murmur they habitually entail." (Walsh.) "The murmur *per se* is of little or no moment in determining the prognosis in any given case." (Osler). Broadbent, Colbeck and others are of the opinion that the murmur may be of assistance. While a loud systolic aortic murmur may indicate little or no stenosis, and a marked mitral stenosis may exist without a murmur, we can say, nevertheless, that, as a rule, a loud, long murmur indicates a better prognosis than a weak, short one. Loudness indicates force, and length that the heart is going through its systole. A loud, long systolic murmur at the apex and transmitted well into the axilla indicates a greater amount of regurgitation than a weak, short one, not so well transmitted.

(b) *Relation of Murmur to the First Sound*.—When the first sound is distinct, followed by the murmur, with an appreciable intervening silence (the delayed systolic murmur), the lesion is less than if the murmur accompanies or replaces the sound.

(c) *Amount of Accentuation of the Second Pulmonic*.—In proportion to the amount of regurgitation, the pressure in the lesser circulation is increased, and with it a more forcible closure of the pulmonary valves.

(d) *Amount of Dilatation and Hypertrophy*.—The effect upon the blood current in a mitral regurgitation consists in a backward flow from the left ventricle to the left auricle, an increase in pressure in the lesser circulation, and sooner or later the same effect upon the right heart. This results in a dilatation and hypertrophy of the left auricle, right ventricle and right auricle. As the left auricle at the time of its contraction is overdistended, an abnormally large amount of blood is thrown into the left ventricle. This produces dilatation and hypertrophy of the left ventricle. These changes are the result of the valvular leak, and may be used as a means to measure the amount of the lesion. The greater the displacement of the apex beat and the greater the cardiac dullness, the greater the lesion.

(e) *The Pulse*.—The characteristic peculiarity of the pulse in this lesion is irregularity in both rhythm and force, due to the influence of respiration upon the large dilated thin-walled left auricle. A considerable leak may occur without any great irregularity, but for a working basis we may say that a mitral systolic murmur, unassociated with an irregular pulse, is of but slight consequence.

(f) *Blood Pressure*.—When abnormally high, the amount and rapidity of the regurgitation may be increased.

(g) *Symptoms Present*.—The inference is, the more numerous and severe the symptoms, the greater the lesion.

### II. AORTIC REGURGITATION.

(a) *The Murmur*.—This is of but little assistance, except so far as the loudness and the length indicate that the pressure in the aorta is maintained, and the left ventricle is working with force.

(b) *Presence or Absence of the Aortic Second Sound*.—Determination of this

point is highly important. As emphasized by Broadbent, auscultation should be made over the vessels in the neck, far enough removed from the aortic area so that there can be no confusion from either murmur or the second pulmonic. When a second sound is heard in the neck it is produced by the closure of the aortic valves, vibration of the aorta and its contents, and has the positive significance that the valves are capable of closing, producing a check to the backward flow of the blood. If absent, the valves are so defective as to be unable to produce the necessary check.

(c) *Relation of Murmur to Second Sound.*—Conclusions are analogous to those in mitral regurgitation.

(d) *Pulse.*—The typical pulse in this lesion is the water-hammer or Corrigan pulse. The greater the lesion, the greater the collapsing character of the pulse. When the collapse is absent or poorly marked, even if the murmur is distinct, the leak must be slight. Certain conditions may prevent the collapsing character, as—

1. An associated stenosis, aortic or mitral.
2. Weakness of the left ventricle, as occurs in the last stages.
3. When aortic regurgitation develops in the aged, the lesion is always slight, the vessels are usually sclerosed, and do not expand, and collapse rapidly.

(e) *Amount of Dilatation and Hypertrophy.*—In this lesion the blood is permitted, during diastole, to flow from the aorta into the left ventricle, and at a time when it is in repose. Much dilatation and hypertrophy result, involving first the left and finally the right heart. The greater the leak, the greater the displacement and the cardiac dulness.

(f) *Blood Pressure.*—When high it has a direct influence in increasing the amount of regurgitated blood. The greater the difference between the systolic and diastolic pressure, the greater the lesion.

### III. AORTIC STENOSIS.

(a) *The Murmur.*—Independently, it is of no assistance.

(b) *Amount of Dilatation and Hypertrophy.*—Owing to the obstruction at the aortic ring, more work is placed upon the left ventricle, and a true concentric hypertrophy results. Later the left auricle and right heart are involved.

(c) *Pulse.*—As the size of the aortic ring is reduced, it will require a greater time for the blood to pass into the aorta. The pulse, therefore, will be reduced in volume and somewhat slowed. A full or collapsing pulse is incompatible with this lesion when uncomplicated.

(d) *Blood Pressure.*—There is not the same direct influence between aortic stenosis and blood pressure as exists in some of the other lesions, due to the interposed narrowing at the aortic ring. For diagnostic, as well as prognostic reasons, it is essential that some hypertrophy of the left ventricle or enlargement of the right heart be present.

### IV. MITRAL STENOSIS.

In the previous lesions the disturbance of the blood flow, regurgitation or obstruction, produced such changes in the cavities and walls of the heart and the peripheral circulation as to serve as a means of measuring the defects. In this lesion we have no such assistance and must, consequently, resort to other means. The obstruction being at the mitral ring, the amount of blood flowing into the left ventricle is reduced; no changes occur in the cavity or walls, and it remains normal or presents a relative atrophy. The left auricle and right heart become dilated and hypertrophied, and the right ventricle may participate in the formation of the cardiac apex. Mitral stenosis is a chronic, slowly progressive disease, and by studying the changes in the murmur and tones Broadbent has divided it into three stages.

First stage—characterized by

- (a) Presystolic murmur at or near apex, with
- (b) A first and second sound.

Second stage—characterized by

(a) A variable diastolic murmur.

(b) Changes in the first and disappearance of the second sound.

The modifications of the murmur may be many, but chiefly consist of

1. The ordinary presystolic terminating in the short, sharp and accentuated first tone. This is the mildest form of the second stage.

2. The early diastolic or the true mitral diastolic—more severe.

3. The interrupted modified presystolic murmur of Fraentzel—still more severe.

4. The modified presystolic murmur of Traube—the most unfavorable form of this stage.

The first sound is short, sharp and accentuated. "At the commencement of systole the ventricular cavity is not fully distended with blood, so that the muscular walls at the first moment of their contraction meet with no resistance; then, closing down rapidly, they are suddenly brought up and made tense as they encounter the contained blood." (Broadbent.) Samsom and others believe the sound is produced by sudden closing of the tricuspid valves.

The second sound disappears as a result of the diminution in the intensity of the second aortic from the reduced amount of blood propelled into the aorta, and from the fact that the left ventricle is no longer in contact with the chest, thus interfering with the transmission of the sound.

Third stage—characterized by

(a) Disappearance of mitral murmur.

(b) A short, sharp, accentuated first tone at apex, and

(c) Appearance of a tricuspid murmur.

The mitral murmur disappears when the tricuspid valves give way and the pressure in the left auricle is no longer sufficient to force the blood into the ventricle. Serious symptoms are never present in the first stage, usually present in the second stage, and the third stage is always a very grave condition.

#### V. CONDITION OF THE MYOCARDIUM.

Upon this factor much depends, and it is of the greatest moment. If the myocardium, the coronary vessels, or both, are diseased, and compensatory hypertrophy be not established, then the prognosis must necessarily be bad. Perhaps compensation has been established and maintained for some time, but nutritive changes interfere with the hypertrophy, and disturbed or broken compensation appears. Then, again, the lesion may increase in degree and the existing condition of the myocardium prevent adequate hypertrophy.

#### VI. AGE.

In the young up to the age of 10 years compensatory hypertrophy is established with difficulty. Aside from the danger of repeated attacks of acute rheumatism, the heart appears unable to keep pace with the double demand of physiologic growth and compensatory hypertrophy. In the aged degenerative changes are usually present and efficient compensation never occurs. After the age of 40 valvular lesions are never satisfactorily compensated.

#### VII. SEX.

Aortic regurgitation is more frequent in the male, while mitral stenosis predominates in the female. Generally speaking, lesions in the female are never as well compensated (Broadbent). Pregnancy increases the danger.

#### VIII. HEREDITY.

Hereditary tendencies have a marked influence on the prognosis. We can not have much confidence in the myocardium of one whose family is short-lived and noted for early arterial changes.

#### IX. OCCUPATION AND MODE OF LIFE.

The patient employed at manual labor in a shop or factory, where it is damp and the ventilation bad, who has improper and insufficient food, who uses tea,



coffee, tobacco and alcoholics to excess, who follows instructions poorly or disregards advice, can have only a stormy future.

#### X. BLOOD PRESSURE.

This factor has been considered under the means of estimating the amount of the lesion, but its importance is such as to require special mention. Blood pressure may influence the prognosis unfavorably if it is abnormally increased or diminished. A pressure above normal, and if sufficiently continued, may in itself lead to chronic valvular disease, or, if the heart is already involved, it will augment the lesion and unfavorably influence the prognosis. In order to maintain a circulatory equilibrium, in the presence of a high blood pressure, it is absolutely necessary that a sufficient hypertrophy of the heart take place, and if for any reason this does not occur, the prognosis is a serious one. On the other hand, when the pressure is abnormally low, the coronary circulation is disturbed, which depends much upon the pressure in the aorta. The nutrition of the heart being reduced, hypertrophy is impossible, or no longer maintained.

#### XI. COMPLICATIONS.

Associated changes in the myocardium, pericardium, lungs, kidneys, or blood, increase very much the gravity of the prognosis. The occurrence of a cerebral or pulmonary embolism may destroy an otherwise good prognosis. Recurring attacks of rheumatism always increase the danger.

#### XII. TREATMENT.

The future is far more promising for the patient who has proper treatment early; who has means to carry it out, and can be free from all business worries and anxieties. If proper treatment is not employed, and a sufficient time permitted to elapse for compensatory changes; if the patient, perhaps from necessity, is compelled to return to work, his chances are by no means so favorable.

## NEWS OF THE STATE.

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Dr. Jackson Piper, Towson, is seriously ill.

Dr. H. Max Reichman has returned from Europe.

Dr. J. F. Duane, Peoria, has returned from Europe.

Dr. John R. Trott, Virden, has retired from active practice.

Dr. George L. Stericker spent part of August in Old Mission, Mich.

Dr. Fred S. O'Hara, Springfield, has been elected state president of the Order of Eagles.

Dr. Broughton, of Rockford, is enlarging his sanitarium by the addition of thirty new rooms.

Dr. Levi W. Carter, Peoria, has been ill for several months and has been taken to the Proctor Home.

Dr. William Bender has been appointed associate professor of anatomy at Keokuk Medical College.

Dr. Channing W. Barrett has been appointed a member of the gynecological staff of the Chicago Policlinic.

Dr. Clarence R. Bell, Thayer, has been appointed physician of the Government Insane Asylum, Washington.

Dr. Charles I. Allen, Milton, was found to be insane July 19, 1907, and was taken to a hospital in Jacksonville.

Dr. George W. Evans, Marion, was overcome by the heat July 20 and for several hours was in a critical condition.

Dr. Nicholas Senn, who left Chicago July 6, is making a tour of South America and will return early in October.

Dr. and Mrs. Lockwood, of Virden, and Dr. L. A. Hagler have been making a tour of the Yellowstone National Park.

Dr. Victor Baccus, Chicago, sailed for Europe, August 3, to take postgraduate work in surgery in Berlin and Vienna.

Dr. Stephen C. Glidden, Danville, has been appointed chief surgeon of the hospital system of the Illinois Traction Company.

Dr. B. B. Griffith, of Springfield, is spending the summer in Colorado Springs, Colo., recovering from an infection of the foot.

The county physician of Cook County states that the insane court passed on 180 patients during July, the largest number on record.

Dr. William D. Corse, Gardenville, Md., is reported convalescent after being struck by lightning and rendered unconscious July 18.

Dr. Ewing M. K. Taylor, Leroy, has been appointed county physician of Macon County and will remove to Decatur to assume his duties.

Dr. Walter W. Greaves, LaSalle, who was operated upon for appendicitis at St. Mary's Hospital July 26, is reported to be convalescent.

Dr. W. W. Graves, of LaSalle, was operated, July 26, at St. Mary's Hospital, in that city, for appendicitis, and at last account was making favorable recovery.

Dr. George H. Fuller was taken to St. Mary's Hospital, Decatur, on July 14, where he was operated on by Dr. Barnes for appendicitis. Reported convalescent.

Drs. A. H. Beebe and C. C. Anthony, of the staff of the Illinois Asylum for the Incurable Insane at Bartonville, have resigned to enter into private practice.

Dr. Robert Emery, Peoria, indicted for murder in the case of the death of Pauline Schneider, who is said to have died after a criminal operation, was acquitted by the jury July 9.

Dr. Adolph Buettner, of Chicago, is said to have been found guilty of manslaughter, August 2, in connection with a criminal operation. The jury included a plea for leniency in its verdict.

The faculty, alumni and students of the College of Physicians and Surgeons of Chicago are uniting by subscription to honor Dean William Quine by installing a portrait bust of him in the Quine Library.

Dr. Alfred C. Crofton requests that the statement made in the May issue of this journal, to the effect that he is a graduate of the University of Pennsylvania, be corrected, as he is not a graduate of this school.

The Chief of Police of Chicago has issued the following order: "Hereafter the following will comprise the detail on police ambulances for each shift: one policeman, one driver and a surgeon, who will be in charge."

The Lake View Hospital and Training School for Nurses, of Chicago, for two years conducted as a private institution, has been incorporated, with a capital of \$30,000, and will begin public work. Dr. Orlander E. Wald is president.

The Fernand Henrotin Memorial Hospital is so near completion that the faculty and directors have made a formal inspection of it and are laying plans for the opening. The formal opening will occur early in September.

A summer student of Green Hall, one of the dormitories for women at the University of Chicago, was removed to the Isolation Hospital July 10 on account of smallpox, and the sixty students in that dormitory were vaccinated by officials of the health department.

Dr. Gordon W. Rice, who has been taking postgraduate instruction in New York City for a number of months, has returned to practice in Illinois, and opened offices in Champaign, where his practice will be limited to diseases of the eye, ear, nose and throat.

Among the applicants for a license in Texas at the examination June 25, 1907, was Dr. I. G. Hubbard, of Nakomis, Ill., who passed with a grade of 84. The doctor is a graduate of the University of St. Louis, 1907. At this examination there were 93 applicants and 20 failures.

Dr. Alexander A. Whamond and other West Side physicians of Chicago have purchased the property formerly occupied by the Finsen Light Institute and have equipped the building as a general hospital. It was formally opened by a reception July 15 and was named the Robert Burnes Hospital.

At the annual meeting of the American Proctologic Society the following officers were elected: President, Dr. A. Bennett Cooke, Nashville, Tenn.; vice-president, Dr. Lewis J. Krouse, Cincinnati; secretary-treasurer, Dr. Lewis H. Adler, Jr., Philadelphia, and executive council, Drs. J. Rawson Pennington, Chicago; Samuel G. Gant, New York City and the president and secretary.

The bacteriological laboratory of the Chicago Health Department has improved its technique in the examination of material from animals suspected of rabies, so that the diagnosis can now be made in about an hour. The value of the method is attested by the satisfactory results that have attended its use in the New York Board of Health laboratories since its introduction some time ago.

A number of cases of smallpox have occurred at Mechanicsburg since the first of July, and an inspector of the State Board of Health has gone to the village to confer with the local authorities regarding quarantine. The secretary of the State Board of Health has issued a circular letter regarding the continued spread of smallpox throughout the state, and with it has sent a poster urging the importance of vaccination as a preventive of the disease.

The first step toward removing the insane from county almshouses by redistricting the state into six districts has been taken. The institution at Bartonville has been changed from a hospital for the incurably insane to a district hospital, thus giving a new district. After September 2 new cases will be sent to the hospital for the district in which the patient resides. By this ruling the State Board of Charities hopes to avoid peril, confusion and expense.

On August 3 the first issue of the *Bulletin* of the Chicago School of Sanitary Instruction, devoted to the dissemination of advice and information of the Department of Health was issued. The publication is to be weekly and will include the weekly bulletin heretofore issued by the Department of Health. In addition, the first issue discusses the milk supply of Chicago and quotes at length from a recent paper on the freedom of Chicago born individuals from cancer.

A certain Edward Dowall, 418 LaSalle street, was found guilty, Aug. 7, 1907, of obtaining money by false pretenses, by a jury in Municipal Judge Walker's court in Chicago. Mrs. Emma Miller, 134 Milton avenue, Chicago, charged that Dowall represented himself as a physician and secured \$150.00 from her after he had agreed to obtain a midwife's license for her from the State Board of Health. It is remembered that Dowall served a sentence in Michigan penitentiary.

The Medical Examiners of the Mutual Life Insurance Company of New York will be pleased to learn that the former schedule of fees, namely: a flat fee of \$5.00 per examination, irrespective of the amount of insurance applied for, has been restored. In addition, the company now allows a fee of \$2.00 or \$5.00 (according to the kind of examination required) for each examination made for the restoration of a lapsed policy. As will be seen, this places the examiners on a better basis than they have ever been in the past.



*The Bulletin* of the Chicago Department of Health states that, for the first time in its history, the department is receiving the active cooperation and the assistance of the Department of Police in its efforts, not only to safeguard the health, but also to promote the comfort and general well-being of the citizens. The present chief of police, George M. Shippy, introduces this new departure by an order intended to abate the intolerable hot-weather nuisance arising from failure to remove the bodies of dead animals from streets, alleys and other places.

The Secretary of the Illinois Civil Service Commission announces that the following individuals have passed the examination recently conducted by the commissioner and are eligible for appointment: Dr. Henry W. Miller, Dunning, director of State Psychopathic Institute; assistant physicians, Drs. Fred B. Clark, Elgin; Emil Z. Levithin, Chicago; Harriet Hook, Lincoln; E. Lewis Abbott, Anna; Richard F. Windsor, Angelina G. Hamilton, Ann Arbor, Mich.; Rachael A. Watkins, Peoria; Edward A. Foley, Woodstock, and Cyrus H. Anderson, McLeansboro, and first assistant physicians, Drs. Robert B. Hough, Lincoln, and Eugene Cohn, Hospital.

The Chicago Relief and Aid Society has begun the work of establishing ten centers in the congested districts of the city where children may play without being overcome by the heat. One of these tent villages is in the yard of the Henry Booth house, one at the University of Chicago Settlement, and the third at the Northwestern University Settlement. Each day volunteer physicians talk to the mothers on the proper care of children during the hot weather. The following physicians are in charge of the tents: Drs. Frances M. Allen, Julia D. Merrill, William J. Butler, John C. West, James W. VanDerslice, May Michael, Frank W. Allin, Thomas G. Allen and Grace F. Hagans.

The following appointments of surgeons have been made by the Illinois traction system of interurban electric lines, effective Aug. 1, 1907:

Dr. Charles F. Hough, Champaign, Ill.

Dr. J. W. Knott, Monticello, Ill.

Dr. G. S. Edmondson, Clinton, Ill.

Dr. F. M. Ewing, Lincoln, Ill.

Dr. Tylor Merriweather, Decatur, Ill.

Dr. F. M. Wilbur, Riverton, Ill.

Dr. G. N. Kreider, Springfield, Ill.

Dr. E. R. Motley, Virden, Ill.

Dr. J. S. Collins, Carlinville, Ill.

Dr. Auer, Staunton, Ill.

Dr. Joseph Pogue, Edwardsville, Ill.

Dr. J. W. Scott, Granite City, Ill.

Dr. Carl E. Black, Jacksonville, Ill.

Health School for Chicago.—Articles of incorporation have been granted for the Chicago School of Instruction with Health Commissioner Evans, Assistant Health Commissioner Reilly and Dr. J. Biehn as founders. Free instruction will be given in general bacteriologic work, in bacterial diagnosis of disease and in the chemical analysis of water, ice, milk

and food products. The students must serve two weeks in the city laboratory and two weeks accompanying the sanitary inspectors around the city. The faculty of the new school includes, besides the health commissioner, Dr. Frank X. Walls, chief of the antitoxin service; Charles B. Ball, chief sanitary inspector; Dr. C. W. Biehn, chief of the disinfection service; Dr. M. O. Heckhard, registrar of vital statistics; Dr. Joseph Biehn, director of the city laboratory, and Dr. Heman Spalding, chief medical inspector.

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#### CORPORATIONS.

The Secretary of State at Springfield has incorporated the following companies:

J. R. Watkins Medical Company, Winona, Minn.; capital, \$500,000; located in Elgin, Ill.; capital in Illinois, \$50,000.

Chicago School of Sanitary Instruction, Chicago; instruction in public hygiene; incorporators, W. H. Evans, F. W. Reilly, J. F. Biehn.

Dr. Kirkwood Manufacturing Company, Chicago; capital, \$10,000; manufacturing and dealing in medical and toilet supplies; incorporators, Charles A. Kirkwood, John C. Kristan, William Hardiman.

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#### MARRIAGES.

WILLIAM B. HANELIN, M.D., to Miss Marion Perbohner, both of Chicago, July 31.

GEORGE ALBERT GARDNER, M.D., of Chicago, to Miss Charlotte Thayer, of Chicago, Aug. 14, 1907.

DANIEL L. GALLIVAN, M.D., of Chicago, to Miss Pauline Birchman Conway, of 142 North Eighteenth street, Philadelphia, Pa., July 25.

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#### DEATHS.

WILLIAM TODD SMITH, M.D., Jefferson Medical College, Philadelphia, 1854; of Springfield, Ill., died at his home in that city, July 6, from senile debility, aged 84.

ROBERT G. LAYCOCK, M.D., Toronto University Medical Faculty, 1894; of Hopedale, Ill., died in the Brokaw Hospital, July 22, from pancreatitis and gall stones, aged about 65.

CARL D. STONE, M.D., College of Physicians and Surgeons, Chicago, 1898; of Chicago, died at the Michael Reese Hospital, in that city, July 18, from typhoid fever, after an illness of one month, aged 35.

SIMPSON R. DENTON, M.D., Bellevue Hospital Medical College, New York City, 1882; a member of the Illinois State and Hancock County medical societies, died at his home in Elvaston, Ill., July 10, aged 53.

LEE McELROY, M.D., Northwestern University Medical School, Chicago, 1905; for two years an interne at the Alexian Brothers Hospital, Elizabeth, N. J., died at that institution, July 26, from cancer of the gall bladder and duodenum, after an illness of two months, aged 30.

MORRIS H. GOODRICK, M.D., Homeopathic Hospital College, Cleveland, Ohio; 1881; an alderman of Jacksonville, Ill., sometime city

health officer of Morgan County and physician to the Illinois State School for the Blind, died in his home in Jacksonville, July 28, from uremia, after an illness of two weeks, aged 50.

DAVID R. SANDERS, M.D., Medical College of Ohio, Medical Department, University of Cincinnati, 1877; a member of the Illinois State and Union County Medical societies; a veteran of the Civil War, first assistant superintendent of the Illinois Southern Hospital for the Insane, Anna, died at that institution, July 22, from disease of the stomach, after a short illness, aged 62.

LEONARD S. TAYLOR, M.D., of Elgin, died at his home in that city, August 5, of blood poisoning and melancholia following a needle prick during an operation on May 18. He graduated from Bennett Medical College, Chicago, in 1889, and, after serving as interne at Cook County Hospital for eighteen months, returned to his native city, where he has been in active practice. He was 40 years of age and leaves a wife and three children. He was a member of the Elgin Physicians' Club and of the Fox River Valley Medical Association.

HENRY E. CUSHING, M.D., of Champaign, died at his residence in that city, Sunday, Aug. 10, 1907, in the fifty-seventh year of his age. Dr. Cushing was born at Ashburnham, Mass., was graduated from Dartmouth, Andover, N. H., in 1882, and from the Chicago Medical College in 1884, and he immediately entered upon the practice of his profession in Champaign, where he remained till his death. His wife, to whom he was married in 1884, with two sons, Dudley and Donald, and other relatives, survive him. He was a member of the County and State medical associations, A. M. A., the Æsculapian Society, the National Society of Railway Surgeons, the district surgeon of the Illinois Central Railroad for ten years, president of the Twin City Physicians' Club and a member of the staff of the Julia F. Bingham Hospital.

Dr. Cushing occupied a very high position in Champaign, both as a physician and a worthy citizen. It is believed that his early death was a result of over-diligence and faithfulness to his professional duties.

At a special meeting of the Champaign County Medical Society, held Aug. 11, 1907, the following resolutions were unanimously adopted:

"WHEREAS, It has pleased the all wise Creator to remove from our midst our honored brother and member, Dr. H. E. Cushing; therefore,

*Resolved*, That we, the members of the Champaign County Medical Society, hereby express our deep sorrow at the untimely removal of one so useful and beloved from our profession; that we extend to the wife and sons our heartfelt sympathy in this hour of their great bereavement in the loss of husband and father at the time of his greatest need and usefulness.

*Resolved*, That a copy of these resolutions be sent to the bereaved family, and that they also be placed upon the records of our society and given to the public.

DR. JOHN MARTEN,

DR. JOHN A. HOFFMAN,

DR. JAMES S. MASON,

Committee.

# ILLINOIS STATE MEDICAL SOCIETY

## SECTION OFFICERS AND COMMITTEES.

### SECTION ONE.

S. E. Munson, Springfield.....Chairman  
George Edwin Baxter, 1916 Evanston Ave.,  
Chicago ..... Secretary

### SECTION TWO.

E. Wyllys Andrews, 100 State St., Chicago.  
.....Chairman  
W. B. Helm, Rockford.....Secretary

### COMMITTEE ON PUBLIC POLICY.

Robert B. Preble, Chairman.  
Carl E. Black, Jacksonville.  
J. W. Pettit, Ottawa.  
The President and Secretary, ex-officio.

### COMMITTEE ON MEDICAL LEGISLATION.

L. C. Taylor, Springfield.  
M. S. Marcy, Peoria.  
J. V. Fowler, Chicago.  
The President and Secretary, ex-officio.

### COMMITTEE ON MEDICAL EDUCATION.

Frank P. Norbury, Jacksonville.  
J. F. Percy, Galesburg.  
C. L. Mix, Chicago.

### COMMITTEE ON SCIENTIFIC WORK.

The Section Officers.  
The President and Secretary.

## COUNTY SOCIETIES.

This list is corrected in accordance with the best information obtainable at the date of going to press. County Secretaries are requested to notify THE JOURNAL of any changes or errors.

### Adams County.

J. H. Rice, Pres.....Quincy  
Clarence A. Wells, Secy.....Quincy

### Alexander County.

Samuel B. Cary, Pres.....Cairo  
J. T. Walsh, Secy.....Cairo

### Bond County.

John W. Warren, Pres.....Greenville  
J. C. Wilson, Secy.....Greenville

### Boone County.

R. W. McInnes, Pres.....Belydere  
R. H. Herbert, Secy.....Poplar Grove

### Brown County.

S. J. Wilson, Pres.....Versailles  
F. E. McGann, Secy.....Mt. Sterling

### Bureau County.

J. C. White, Pres.....Seatonville  
O. J. Flint, Secy.....Princeton

### Calhoun County.

I. S. Berry, Pres.....Batchtown  
Stephen Platt, Secy.....Hardin

### Carroll County.

G. W. Johnson, Pres.....Savanna  
H. S. Metcalf, Secy.....Mt. Carroll

### Cass County.

C. M. Hubbard, Pres.....Virginia  
J. A. McGee, Secy.....Virginia

### Champaign County.

J. C. Dodd, Pres.....Champaign  
C. D. Gulick, Secy.....Urbana

### Clark County.

R. Ryerson, Pres.....Martinsville  
L. J. Wier, Secy.....Marshall

### Clay County.

Geo. W. Steely, Pres.....Louisville  
C. E. Duncan, Secy.....Flora

### Christian County.

J. J. Conner, Pres.....Pana  
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## ORIGINAL ARTICLES

### GOITER; ITS SURGICAL TREATMENT BASED ON FOUR HUNDRED AND SEVENTY-FIVE CASES.\*

C. H. MAYO, A.M., M.D.

ROCHESTER, MINN.

The thyroid gland shows very early in the development of the embryo. It is formed from three areas or buds, two lateral and one median. The median bud develops between the two halves of the tongue, and invaginates, extending down the neck as a tube—the thyro-glossal duct. The fifth week the developing hyoid bone crosses the line of the duct. The upper portion obliterates, leaving an opening at the back of the tongue—the foramen cecum. The lower portion forms the upper poles, isthmus and also pyramidal lobe, when it is present. The seventh week sees the portions united with the lower poles which develop from lateral buds in the fourth branchial cleft. At times the median portion does not descend, but remains in the tongue, developing a tumor known as a lingual thyroid. In the vertebrates the union of the various sections of the thyroid does not occur, and this, to some extent, is not an infrequent anomaly in man.

The united gland is somewhat the shape of a horseshoe, the concave border being up. It rests upon the front and sides of the trachea, to which it is firmly attached. The thyroid is inclosed by a fibrous capsule, which also aids in fixing the organ to the thyroid cartilage and tracheal rings. The capsule which covers the gland divides behind in such a manner that it not only covers the gland posteriorly, but also passes behind the esophagus between esophagus and trachea, to unite with similar structures upon the opposite side. With such encapsulation we can readily see how the growth of the gland or the development of tumors within its tissue may cause serious pressure and distortion of the structures in immediate relation to it. The weight of the gland in the healthy adult is from one to one and a half ounces.

\*Address in Surgery Delivered at the Fifty-seventh Annual Session of the Illinois State Medical Society, May 21-23, 1907.

Accessory thyroids are also seen at times in the lines of the original areas of development. The thymus gland is formed from buds in the third branchial groove and passes downward in development to rest beneath the sternal notch.

The parathyroids discovered by Sandstrom in 1880 were supposed to be accessory thyroids until 1897, when it was shown that they were most important structures, having a separate function from the thyroid and seemingly to control to a great extent the nervous system. In later life they are apparently more important than the thyroid, as their removal causes death from tetany. The loss of the thyroid can be, to a great extent, supplied by feeding the gland, but feeding parathyroid is not as successful for tetany.

The function of the thyroid is a complex one. Among the various functions of the gland are its dilating effects upon the capillaries. In overdoses the metabolism of the body is affected by causing a loss of weight. In the obese it is a remedy to reduce overweight. Overdosage causes warmth of the skin, redness and excessive sweating. Tachycardia is developed also from overfeeding of the gland secretion, one cause being from the large proportion of blood in the capillaries.

Hypothyroidism or loss of function of the gland, the opposite condition from hyperthyroidism as occurring in exophthalmic goiter, we see in myxedema, in which the opposite conditions also prevail; harsh, dry, thick skin with open pores, development of fatty deposits in pads over shoulders and clavicles, broadening and change of facial condition. General dulness or sluggishness of intellect and increase of weight is common.

A child born without a healthy thyroid fails to properly develop either mentally or physically. The secretion of the suprarenal capsule apparently serves to constrict all capillary growth and supply to the brain cortex, as well as the rest of the body. Such cretins often make wonderful progress from the transplanting of the thyroid tissue or from feeding the same.

The thyroglobulin of the thyroid is not destroyed by gastric juice or even by boiling in 10 per cent. sulphuric acid solution.

Simple goiter or thyrocele is a most common occurrence in girls at puberty. The development is seldom excessive and usually subsides without treatment unless there be an encapsulated growth in the gland which becomes manifest from the increased circulation. These cases without an encapsulated tumor rarely require treatment and usually are of but a few months' or years' duration at most.

The second period of the development of goiter is during pregnancy. In fact, the enlargement of the gland is one of the favorable signs of pregnancy. Lange has shown that if the gland is not enlarged in the pregnant woman she will have a tendency to albuminuria. This connection of the thyroid with the generative organs in the female is well marked, as diseased conditions of the generative organs are out of proportion common to those possessing goiter, while it is most common for



women to have a temporary enlargement just previous to or during menstruation.

Hemorrhage.—Some cases of sudden development of thyroid tumors, accompanied by great pressure and suffocating symptoms, are due to hemorrhage into the gland. Early incision is required.

Septic conditions affecting the thyroid are not common, but the pneumococcus is one of the more common organisms found and is transmitted by the blood stream. Early free incision is demanded for relief. Still less common are seen tuberculosis, actinomycosis or hydatid infection.

Those thyroids which present small nodules or median smooth and rounded tumors, or in which the natural contour of the gland is lost in the development of the rounded tumor, are practically always encapsulated tumors of fetal origin, or fetal rest tumors of embryonic thyroid tissue, or adenoma, some with cystic change.

Those goiters which develop more in accordance with the normal shape of the gland are more commonly known as diffused colloid, or diffuse adenomata, while those with larger retention, accumulations of colloid with irregular contour are often called follicular goiter, the only capsule being that of the gland.

We employ the term hyperthyroidism because it expresses the true conditions far better than the terms more commonly used, viz., Graves' disease, Basedow's disease, Parry's disease, or exophthalmic goiter. To those of us who have been for many years on the firing line, so to speak, of the surgical side of this subject it is extremely gratifying finally to see the disease placed upon a scientific basis of cause and effect.

For many years the varieties of treatment, or the remedies used for Graves' disease, were only exceeded in number by the numbers in use as cures for the *douloureux*. These methods were rarely based upon other than empirical statements that they seemed good for or that they improved an individual case or two. The more recent attempts at relief by serum therapy appear to be based upon good reasoning, and when properly employed have in selected cases given satisfactory results.

In the past the operative treatment of goiters in general had been placed under a ban. It was considered an operation to be undertaken only under dire necessity, and naturally a last resort operation was accompanied by a high mortality. The main points impressed upon students were the reasons for not operating, and the patients were also informed that some hideous skin disease might follow or of a surety that they would become "foolish" should the goiter be removed and they survive the operation. Under these circumstances surgical treatment was advised only for patients who were exhausted by their disease or by the treatment they had received, and thus surgical aid was given only to those cases who persisted in failing in spite of all methods of treatment. Very often moribund cases were operated upon as a *dernier ressort*, and as usual in the progress of medicine, failures of this kind result either in abandonment or development of methods, improvements in diagnosis, choice of and preparation of patients, until to-day we have

presented to us in a large series of cases the wonderfully low mortality of 2 or 3 per cent., and all cases relieved and most of them cured.

The statistics of the Kochers (who have long led the world in goiter surgery) report some 250 cases of hyperthyroidism surgically treated. Other operators present a large number of cases, though smaller than the Kochers, and in considering these statistics I say again that it is extremely gratifying to know that we have accepted the fact that there is a similar change in the thyroid, either in part or in the whole of the gland in hyperthyroidism. Practically it is a "work" hypertrophy and can not be distinguished from such condition when experimentally produced.

We have to consider four types of the disease, three regular and one pseudo.

First, the soft vascular pulsating thyroid with symptoms of hyperthyroidism.

Second, the hard, dry gland of hyperthyroidism, or usual type.

Third, the development of hyperthyroidism in those with pre-existing goiter in whom we find the changes of solid tissue, loss of colloid and vesicles filled with columnar and cuboidal cells in scattered areas, instead of a general change in the gland as in the first two types.

Fourth, pseudo hyperthyroidism in which we have those who by reason of the growth of an encapsulated adenoma in the gland suffer from excessive absorption of their own gland, which occurs at irregular intervals. Such cases may suffer from all the ordinary changes of hyperthyroidism for short periods, but they seldom develop exophthalmus.

The last-named variety is often overlooked in securing histories of goiterous individuals. Inasmuch as many cases of hyperthyroidism recover without treatment and others in spite of treatment, it is perfectly justifiable for physicians to institute treatment on any line, plan or system which they believe proper. The mistake in the past has been to persist in the belief that some particular drug or treatment would eventually be successful, in spite of the downward progress of the patient, thus withholding surgical aid until, of necessity, the surgical mortality represents also in part what should properly be medical. On the other hand, the surgeon should not accept cases for operation until all the conditions are as favorable as possible for the recovery of the patient. One of the great dangers of the operation is from myocardial change, usually shown by uneven tension and irregularity in the pulse. No patient should be operated upon whose pulse can not be counted continuously because of uneven tension. Gastric crisis or diarrhea should also lead to postponement of operation. Ascites and edema of feet and hands are contraindications. All of the foregoing contraindications may, by suitable treatment, be overcome. The Kochers, in these cases, ligate one or more vessels of supply (under cocaine), according to the case, reserving extirpation of the gland for a later period.

We have used belladonna extract with quinin internally, and in certain cases the x-ray is applied over the gland for as many times as is sufficient to discolor or even burn the skin. This treatment is given until

the general condition improves and the operation is considered safe. The improvement under Roentgen ray may be most marked for a time, but is seldom a lasting one.

The anesthetic of choice is ether. Very rarely, indeed, do we find it necessary to use cocain. The etherization is preceded 20 to 30 minutes by a hypodermic of  $1/6$  grain of morphia to allay the nervous restlessness and lessen the necessity for profound anesthesia. With the morphia is given  $1/120$  of a grain atropin to relieve the tracheal mucus which may come from ether as well as the tracheal trauma.

The patient is placed in the reverse Trendelenberg posture, which by gravity tends to relieve the upper portion of the body of blood. The incision is the transverse, or collar, and includes skin and platysma myoid muscle. The dissection of these structures held together is carried down to the sternum and up to the top of the thyroid cartilage, the sternohyoid and thyroid muscles are separated in the midline to expose the gland. This separation may be sufficient in small tumors to permit the delivery of the gland, but often it will be necessary to cut across the group on the side removed to secure a safe working field. They are incised near the upper insertion so as to avoid injury to their nerve supply, and resutured at the close of the operation. This also breaks the continuous penetrating scar. The posterior capsule of the gland is brushed back with gauze as the gland is elevated. The superior thyroid artery is clamped and ligated as the upper pole is delivered, the inferior thyroid artery is ligated as it enters the gland through the capsule. At times this artery may be ligated further out if seen in the dissection.

Preserving the posterior capsule tends to prevent injury to the parathyroids which rest behind the intimate capsule of the gland, the injury or removal of which we know may cause tetany. This also preserves the recurrent laryngeal nerve. In several hundred operations for goiter we have seen but one very mild case of tetany of a temporary nature following this method of procedure. Great care must be exercised in ligating the superior thyroid, as a considerable proportion of deaths following an apparently successful operation are from hemorrhage. This hemorrhage is usually due to the including of some fibers of the omohyoid muscle in the ligature, which may be dislodged with movements of the neck. The isthmus is ligated, the wound area burned with carbolic acid and alcohol neutralization, or washed with Harrington's No. 9 solution, followed by free drainage through separate incision.

Harrington's solution:

	Parts.
Alcohol .....	640
Water .....	300
Hydrochloric acid .....	60
Bichlorid .....	8

The patients are given freely large saline enemata under slight pressure. If not retained they are given saline subcutaneously. This is repeated several times within the first 36 hours. Should excessive sweating occur, atropin is administered. If there is considerable serous discharge, hot boric acid dressings are applied over the front of the neck. The

drains are left from 2 to 4 days, according to their apparent utility. The deaths which occur will usually be within 20 hours.

The general nervous restlessness and tremor subsides to a remarkable degree within two days. The pulse may remain from 120 to 170 for two days, but drop suddenly on the third day about 20 to 30 beats, and is usually 80 or 110 beats within six days. The temperature may be elevated 2 to 5 degrees for two days following operation, when it drops with the pulse.

If exophthalmus is marked, it will not entirely disappear after operation, but will be greatly improved. Many cases only partially relieved of their symptoms are in no sense a discredit to the surgery, but merely show that not sufficient gland has been removed. These cases should be reoperated and more of the gland extirpated. We are greatly pleased with the result in four cases where this was done.

After operation these patients are seldom confined to the bed more than three days, and are commonly out of the hospital within a week. Practically all cases are improved over their former condition, and most of them cured. The mortality is constantly decreasing. There were 4 deaths in the first 16 cases, 3 in the next 30. We have made the last 150 operations with 2 deaths.

In operating upon encapsulated tumors in the thyroid, we have the work well outlined for us by the conditions present. An encapsulated tumor of the gland is not supplying the system with thyroid secretions; therefore, its removal is an advantage to the system in preventing the destruction of real thyroid. The more nearly the surgeon can enucleate the growth without destroying or removing the thyroid the more surely will there be only favorable results following the operation. Even enormous cysts should be enucleated, preserving what little thyroid there may still be in the capsule. Unless these tumors are very large and much traumatic serum is expected, drainage is not necessary.

Sarcoma and cancer are most serious changes to occur in the gland. Such conditions are usually operated too late to give other than a high mortality and but few permanent cures. While the tracheal pressure is lateral in benign growths, we have noticed that it is the anterior rings which are softened by malignancy.

The mortality from thyroidectomy in benign tumors is very low, practically being accidental, as from pneumonia, hemorrhage or sepsis.

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#### INDICATIONS FOR, THE TECHNIC OF AND RESULTS IN SURGERY OF THE PERIPHERAL NERVE.\*

JOHN B. MURPHY, A.M., M.D., LL.D.

CHICAGO.

With the hope of placing the surgery of the peripheral nerves and spinal cord on a substantial basis and having some guide for operative procedure, we have endeavored to determine what cases were and what cases were not operable in taking up this line of work.

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\* Read before the fifty-seventh annual session of the Illinois State Medical Society, May 21-23, 1907.



In order to have the indications for surgical procedures clear, and that we may know the basis on which these are founded, it will be necessary for us to go into some elementary matters in connection with the nervous system, and I trust you will pardon that portion of the paper.

The first question is, After the division of the nerve, what occurs to the peripheral portion? What occurs to the proximal portion? What are the possibilities of regeneration in the peripheral portion and in the proximal portion? And what are the probabilities of restoration of function of that nerve? In order to answer these questions we must go back to the histology of the nerve unit, which is known as the neuron, and all surgical procedures and all surgical results, as well as those from internal treatment, are based on the neuron. The neuron theory, as the unit of the nervous system (although it is not accepted by many authorities), is particularly applicable to the practical surgical side of this question.

The neuron or unit is made up of the cell body of an axon, of dendrites and of telodendrons. In the center of the cell body is the nucleus. Separate any portion of the neuron from the nucleus, the distal part always degenerates, no matter if that separation is instantaneous and is reapproximated. Under favorable conditions regeneration is possible in certain peripheral nerves and in portions of the spinal cord.

In order to appreciate what set of nerves, therefore, is capable of regeneration, we must ask ourselves, What are the conditions of regeneration? The axon, which is an elongation of the neuron, is made up of three portions, namely, the neurilemma with its lining cells, the medullary sheath and the axis cylinder. The axis-cylinder is the central conducting portion and is continuous from the cell body to the most distal portion of the nerve, in fact, projects beyond all of the other sheaths into the tissue cells. It is the conducting cylinder of the nerve. It is a part of a cell, and when separated from the center or cell body the distal portion always dies. The medullary sheath is present in practically all the peripheral nerves except the sympathetic, and we believe, although that is not definitely settled, that it is the insulating sheath of the nerve. It possibly has something to do with the transmission of nutrition to the axis-cylinder from the neurilemma, and plays a most important rôle in the surgery of the nerve, and its insulation accounts for many of the failures that have resulted from nerve union. The neurilemma, which is the outer, is the regenerative sheath of the nerve. An axon without a neurilemma, whether it be in the cerebrum, whether it be in the spinal cord, or whether it be in the peripheral nerves, is never capable of regeneration. Therefore, when we come to the surgical aspect of this subject, the most important question is, Has the nerve a neurilemma? If it has no neurilemma you are through, from a surgical standpoint. If it has a neurilemma, then it is capable of regeneration; it is capable of having its function restored under favorable conditions.

In our anatomy of the nerves we do not classify them as formerly but in the order of their reproductive or regenerative power. On this chart (pointing to the chart) we have classified nerves into those that

are neurilemmic and those that are aneurilemmic. You will see that the neurilemmic nerves are those of the spinal cord, and all of the cranial nerves, except the nerves of special sense. If we take the anterior cornu of gray matter and follow it up, we will find it passes on through the medulla, spreads out on the floor of the fourth ventricle and up in the under portion of the pons itself clear to the upper portion of the third cranial nerve; it is one continuous row of motor ganglionic cells. These ganglionic cells in the anterior cornu of gray matter in the cord, and in



Figure showing anastomosis between spinal accessory and facial nerve. *a*, End-to-end anastomosis between facial and spinal accessory. *b*, Hypoglossal nerve. *c*, Stylohyoid muscle. *d*, Parotid gland. *e*, Central end of facial nerve. *f*, Peripheral end of spinal accessory. *g*, Posterior belly of digastric muscle. *h*, Muscle. *i*, Outline of transverse process. (Original drawing from a dissection.)

its continuation on up through the medulla and into the pons, are the trophic cell bodies of all of the motor nerves. As they pass out of the spinal cord, and out of the medulla and pons, they all receive a neurilemma. Therefore, all of the motor cranial nerves are capable of regeneration under favorable conditions.

As to the nerves of special sense, the optic nerve, which is the most conspicuous, has its ganglionic cell body not in the medulla, the pons or in the brain, but in the retina, and its axons run from the retinal ganglionic cell body back to the brain. Its axons have no neurilemma. When it is divided in any part of its course it has no power of regeneration. This clinical fact was observed in my early practice. A young man was in the act of sliding from a haymow when a pitchfork passed under his zygoma, up to the optic foramen, cutting off his optic nerve. I believed from the fact that the divided ends were in contact and as there was no infection, that there would be a reunion of the nerve and regeneration, and so I expressed myself to the people. I did not know at that time that the optic nerve was a non-neurilemmic axonal nerve, entirely incapable of regeneration once it was divided, no matter how accurately the nerve ends were approximated. The subsequent course of the case showed that there was not the slightest effort at regeneration and not the least return of vision.

Again, we have the classification of sensory nerves into those in the cranium and the spinal cord; they are, from a surgical standpoint, practically the same. We have a ganglion on the posterior nerve root and on the trifacial within the cranium; in these ganglia the trophic cell body is placed that furnishes the axon to the peripheral portion and furnishes additional axons from the posterior root into the posterior column and up through all the sensory fasciculi on that side. Therefore, in the matter of motion we have a nutrient cell body in the anterior cornu of gray matter; in the sensory nerves we have the nutrient cell body which supplies that portion of the nerve unit in the ganglion on the posterior root. These sensory axons, after they leave the surface of the ganglionic cells and pass out, receive a medullary sheath and neurilemma; they also are capable of regeneration when they are divided distal to the ganglion. When they are divided proximal to the ganglion, i. e., between the ganglion and the cord, ascending degeneration takes place. While the axon has a neurilemma until it enters the posterior commissure, when it passes into this it loses its neurilemma and then ascending through the posterior columns (of Goll and Burdach) it has no neurilemma and is incapable of regeneration. Fortunately, through its dendrites which establish contact with other cell bodies in the posterior root, we have some transmission of sensation after division. The potency of regeneration of a nerve trunk after division is in direct ratio to the size of its ganglion. This is what concerns us so much in the regeneration of the trifacial nerve. The trifacial nerve is, to all intents and purposes, a special nerve, but its ganglion, namely, the Gasserian, in place of being situated outside the spinal foramen, is situated inside the cranial foramina, partially within and partially without the dura. As it is a ganglion of great size, you can conclude at once that its nerve trunk has great potency of regeneration, which fact is supported by overwhelming clinical evidence. If we make a division of the nerve in any portion of the trunk, after a short period of time regeneration will take place, even as soon as eight or ten weeks; if we allow immediate contact of the divided

ends there will be a re-establishment of sensation in the face on the side on which the nerve has been divided. For a long time we were taught that the disease or lesion concerned in trifacial neuralgia was of ganglionic origin, and the microscope was brought to the assistance of those who claimed it was a central lesion. It was said that trifacial neuralgia recurred after the division of this nerve, and, therefore, the lesion must be central. It has not recurred in a single case that has come under our observation until there was re-establishment of union between the peripheral sensitive nerve bulbs and the central axon. That gives us the keynote to the treatment, and Abbe and others have taken advantage of it in the surgical treatment by interposing inabsorbable and impenetrable material between the ends of the divided roots or axons. On that



Facial paralysis, operated June 30, 1906.

basis various means have been employed to prevent the re-establishment of this union, namely, large tracts of the nerve have been removed, which, in any other nerve in the body having a smaller ganglion, would have resulted in a permanent obliteration of sensation in that tract, but on account of the enormous regenerative power of the trifacial through its large ganglion we have a re-establishment of union even after the roots have been removed. In the destruction of the nerve trunk by chemicals, as iodine, nitric and osmic acid injections, primary neurosis and a large connective tissue deposit are produced. While axons find great difficulty in penetrating connective tissues, we have noted with the destruction of inches of this nerve by these chemicals that finally the axons penetrate the mass and there is a re-establishment of sensation in the face; within a few weeks, as reported by the patients, the neuralgias would return.



We have found in the ordinary spinal cord nerve that the interposition of one-quarter or one-eighth of an inch of connective tissue was sufficient to prevent the re-establishment of union. Therefore, in the surgery of trifacial neuralgia, we must, if we hope to bring about a permanent cure, interpose some material that cannot be penetrated by the axons as they elongate from the proximal side and have great penetrating force.

Abbe was the first to take advantage of this and suggested the interposition of gutta percha, which is good for that purpose if it will remain in place. A simpler method, however, of effecting a permanent cure of trifacial neuralgia is to make an osteoplastic flap, as indicated in the Hartley-Krause operation, but smaller in size. Through a U-shaped incision just about three-quarters of an inch above the zygoma, remove the bone with a rongeur, as there is a muscular flap to subsequently cover the opening. With a tongue depressor and finger elevate the dura until the foramina ovale and rotundum are exposed, hook or seize the nerve, draw it even out of the foramen and excise the exposed portion, push the ends back through the foramina; then slip a coal-tar paraffin disc elliptical in shape and as thick as a nickel, between the dura and the bone over the openings. Press the disc of paraffin firmly, thereby forcing pivots of it into the foramina; this prevents the paraffin from sliding out of position. It has no particular advantage over gutta percha, so far as penetration is concerned. After it is deposited it does not slide, the dura rests upon it and it is a permanent barrier against axonal penetration. So much for the important and practical points in connection with this nerve of sensation, which concerns us so much in the surgery of the face.

The next important point is the application of the same principles of our knowledge of regeneration to the facial nerve in paralysis of the face.

In the facial nerve we have three types of paralysis, which concern the surgeon, and they occur in three different and distinct locations: First, that from infection identical with the anterior poliomyelitis of the cord. It, however, affects the fasciculus teres in the floor of the fourth ventricle—a continuation of the anterior gray matter of the cord. Second, that from lesions of the nerve in its canal, in the temporal bone. Third, that from lesions and divisions of nerves outside, the stylo-mastoid foramen. The differential diagnosis as to the location of the primary lesion is easily made. With the inflammatory conditions of the fasciculus teres all of the muscles supplied by the facial are not paralyzed, as the facial trunk receives outside of the cord some axons from the nucleus of the third. These axons supply the anterior portion of the occipitofrontalis, the corrugator supercilii and a few fibers of the upper half of the orbicularis palpebrarum. These muscles, therefore, retain their motion when all of the others are paralyzed as a sequence of a lesion of the fasciculus teres. This is the common infantile type of facial paralysis. In lesions of the bony canal and in divisions outside of the foramen the above mentioned muscles, with all of the other facial muscles, are

paralyzed. The central type was beautifully illustrated in three cases of facial paralysis which I operated in the last five weeks.

In the other class of cases, namely, patients with paralysis of the facial nerve from a lesion in the temporal bone or extra-foraminal division or involvement have complete paralysis of the facial nerve, with no motion whatever in any of the muscles, because before the nerve enters the bony canal it has in it both axons that originate in the nuclei of the third and seventh nerves, and you can make a differential diagnosis at once as to whether it was an inflammatory condition that occurred in the bone and compressed the axons, producing a permanent degeneration, or whether it was a central nuclear disease similar to that of anterior poliomyelitis. No matter where the primary pathologic lesion is, the treatment is the same—that is, to expose the nerve when at the stylo-mastoid foramen, as indicated on the blackboard, and it is not at all difficult if you observe a few points; cut into the sheath of the sterno-cleido-mastoid muscle; curve around its anterior surface, and you come at once to the posterior belly of the digastric as it comes forward from its attachment to the anterior surface of the mastoid process. Just anterior to that you will find the belly of a muscle running downward, the stylohyoid, and in that triangle you will readily find the facial nerve at its exit from the foramen. By this method you arrive without cutting through the parotid gland, without dividing any other muscle than the sheath of the sterno-cleido-mastoid, and without the slightest danger of injuring the facial nerve itself; going on to the posterior belly of the digastric close to the bone spread the dissecting scissors, and the nerve comes out of the foramen.

A little below and behind, on the tip of the transverse process of the atlas, can be found the spinal accessory which passes from in front backward and downward. If the hypoglossal is divided it is very accessible one-half inch lower down in the triangle and just internal to the tip of the transverse process of the atlas.

I use the spinal accessory because it gives the patient the least annoyance and inconvenience; there is but little drooping of the shoulders when the spinal accessory alone is divided, but when the rhomboidal branches of the fifth cervical are severed with it, as so often occurs in operating for tubercular cervical adenitis, there is great drooping of the shoulder and “winging” of the scapula.

When the hypoglossal is appropriated the disturbance in speech and motions of the tongue is not inconsiderable, indeed, it is often very annoying to the patient and produces a marked change in expression of speech. Both the spinal accessory and the hypoglossal are equally accessible from a technical standpoint.

In the treatment of this condition we must observe principles governing regeneration of motor nerves; in order to secure functional union of a motor nerve we must make an end-to-end union of its axons. You will find in the literature of the last three or four years that it has been advocated to split the nerve, pull it through and attach it to the side. That is ineffectual and accounts for many of the partial failures that

have been obtained. By remembering the elementary facts that in order to get union of a nerve we must have axonal contact, that we must have a denuded medullary sheath, and that these axons must be brought into end-to-end union, we are more likely to achieve success. With primary axonal contact, if we do not allow the interposition of connective tissue in the healing, we will have a rapid union and re-establishment of function. The word rapid is a relative term only. Remember, it will not be in a week, two weeks, twelve weeks or fifteen weeks, but it may be twelve or fifteen months before we have re-establishment of function of all axons of the nerve, so that our reward in this branch of surgery is slow but nevertheless certain.

The point of anastomosis should be encapsulated either in a fascia, muscle or wrapped in egg membrane to permit connective tissue interposition during repair.

In every nerve union a part of the technic is that the direction of the current must be continuous; otherwise there will be either failure of transmission or failure of regeneration.

Lastly, I wish to say that in the treatment of anterior poliomyelitic paralysis—in fact, in every type of paralysis of the third division, where we have made end-to-end union of the nerve, removing the connective tissue which covered the axons—we have had a return of function as a result. Furthermore, I believe it should be laid down as a rule that end-to-end approximation of a nerve is as much an immediate surgical demand as is end-to-end union of bones after fractures.

#### DISCUSSION.

Dr. Edwin W. Ryerson, of Chicago:—There is one point in which I differ with Dr. Murphy. If I understood him, he said that in nearly all nerve anastomoses which have been made in recent years for anterior poliomyelitis the nerve has been pulled through a slit made in the body of the healthy nerve, and this cut end has been sewed parallel to the healthy nerve. That is not the case.

Spitzzy has probably done more of this work experimentally than any other man. Spitzzy's method is briefly this: Instead of cutting or dividing the slit through the healthy nerve, he simply with a blunt needle teases the nerve longitudinally, parallel to the fibers, until he has made a narrow recess in the nerve; the end of the diseased nerve is then tucked into that little slit (where it probably approximates, end-to-end, a few of the neurons) and is pushed up against the healthy fibers, although, of course, it may not actually meet end to end with healthy fibers. That is the only way in which Spitzzy has worked, and it is the only safe way to work. I have done more of this type of transplantation than any other individual surgeon has yet reported, and I shall report later the results. It is absurd, in my judgment, to stick a nerve through a slit and tie it up alongside of the healthy nerve, because there is then no possibility of regeneration. It is also a fact that by the method which I indicate the results are not as good as they would be if we were to do end-to-end anastomosis by the suture method. But we can not do that in anterior poliomyelitis, because we have to conserve the nerve power for the healthy muscles as well as supply new nerve power for the useless muscles. If we made an end-to-end anastomosis of the paralyzed nerve with a healthy nerve, we should simply substitute one form of paralysis for another. If we took, for instance, a healthy peroneal nerve and sewed it end to end with a diseased posterior tibial, we would simply be substituting a varus deformity for a

valgus. And this is not advisable in infantile paralysis. We know that this implantation method is as yet imperfect, but it does no harm, at all events, and may be so improved by experience as to be uniformly beneficial.

Dr. Hugh T. Patrick, of Chicago:—I did not expect to be called upon to take part in this discussion, although it is interesting to me from the standpoint of a neurologist. The real, good work is in infancy, and it is very encouraging to have men like Murphy and Ryerson take it up.

Some of the results of facial anastomoses have been good. I saw one a few days ago in which the result was simply marvelous. I could hardly believe such a good result could have been obtained. In other cases the results have been deplorably bad, due largely, perhaps, to imperfect technic in connection with the operations. But these operations, as they are now done, are hopeful and promising. They not only promise well, but promise well in cases which would be absolutely hopeless if left alone, leaving the patients with more or less disability. Sometimes these disabilities are severe, although not dangerous to life, and these operations promise relief. I must confess that sometimes the surgeons and I are at dagger's point, scientifically speaking, but in this particular subject I am very heartily in accord with them, and I must say they are accomplishing things which the internists and neurologists can not hope even eventually to approximate.

Dr. Frank B. Lucus, of Peoria:—Dr. Murphy mentioned the placing of a plug of paraffin over the openings to cover the nerves in, and he said it was not absorbable. We have used paraffin for injection in cases where there is deformity of the nose and other deformities for the purpose of perfecting these parts, though it has been supplemented afterwards by connective tissue. If so, why would not the nerve eventually penetrate the connective tissue which would remain?

I would like to ask Dr. Murphy in regard to the length of time paraffin remains unabsorbed.

Dr. Murphy (closing the discussion):—Just a word. I am sure Dr. Ryerson misunderstood me. I said in many of the results that had been reported recently the erroneous method I described was responsible largely for the partial failures, not that all the operations had been done that way.

I wish to refer to a matter in connection with Dr. Ryerson's work, one which concerns us most in the treatment of the athetoid movements that occur in cases of paralysis. For instance, take the sciatic, we have it dividing into the external (extensor) and internal (flexor) popliteals; these fibers occupy a regular definite anatomic position in the sciatic trunk from the trochanter to the popliteal space, as is well known, it is unnecessary to even use the faradic electrode to determine their positions. In the sciatic there is one basis only for success, and that is to diminish the power of the flexor, the neurons of contraction, and strengthen the power of the extensor axons. If you can produce axonal contact by scraping and raking the neurilemma and medullary sheath from the axons, good; but it is crude, imperfect and unscientific work as well as disappointing in the results. The method that has been adopted by Frazier and Spiller in the athetoid cases was to partially divide the nerve, and in that way reduce the contractile force; we have taken advantage of this principle in the treatment of paralysis of the external popliteal by making a niche in the internal popliteal, cutting into it half of the way, displacing it and suturing the entire distal end of the external popliteal into the niche, so that we can get an end-to-end axonal contact with the assurance of axonal regeneration in the external popliteal. You diminish some of the power but you get the use of muscles that are balanced, and that is what we endeavor to do in tendon transplantation as well as in nerve transplantation in the treatment of anterior poliomyelitic deformities.



With reference to the question asked by Dr. Lucas regarding paraffin, I will say that we use the oil of sesami and the oil of spermaceti in making the Moorhof plug. The oil of spermaceti is an animal oil and is absorbable, but the coal tar paraffin is not absorbable, and whenever it is put under the skin in tissue in large or small quantities it remains permanently, notwithstanding Morton's experiments, which apparently contradict, but in reality support this, as the spermaceti paraffin is absorbable and is replaced by connective tissue. Coal tar paraffin should be used to improve deformities; oil of spermaceti paraffin should be used to fill all bone cavities.

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### THREE UNUSUAL FATAL CASES IN GALL-BLADDER SURGERY.\*

J. E. ALLABEN, M.D.

Surgeon to St. Anthony's Hospital.

ROCKFORD, ILL.

"Growing is discovering our faults and overcoming them."—Elbert Hubbard.

Much of the real progress in all branches of science has been a growth springing up from the soil fertilized by error. In truth, failure is an error only when we neglect to profit by it.

I report the three following fatal cases as an illustration of the atypical forms we sometimes meet with in gall-bladder work, and with the hope of pointing the way to methods of treatment calculated to bring about in similar cases more favorable results.

CASE 1.—This was a case with an immense stone in the gall bladder, complicated with exophthalmic goiter, the symptoms simulating benign pyloric obstruction. Mrs. Lizzie D., of Rockford, Ill., aged 49, was seen on the 22d day of March, 1903. The history of the case carries the trouble back ten years prior to this date, when she had occasional attacks of severe pain in the epigastric region radiating to the back and chest and associated with bilious vomiting. Jaundice was never present.

This part of the history was obtained after considerable questioning along this line, for the patient herself gave a history of only nine months' illness, an illness comparatively free from pain, the predominant symptoms of which were apparently of gastric origin. For nine months she had stomach trouble. At first it was not serious—indigestion with occasional vomiting of a meal. Gradually the vomiting became more frequent. Six months after the beginning of the stomach trouble the vomiting became so persistent that nutrition was impaired and the patient lost strength and was unable to do hard work.

The patient had had a goiter of considerable size for ten years, with slight prominence of the eyeballs, but until recently there had been absence of cardiac symptoms of pronounced character. She had always been a hard working woman—first as a house wife on the farm and later as a practical nurse. The goiter had never interfered with her labor. Her usual weight was 150 pounds, but at the time I saw her it had de-

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creased 30 pounds. She was able to sit up part of the day, but all food taken into the stomach was vomited at once or within ten minutes. Six weeks previous to my first visit she had been in Chicago and had undergone an operation by a prominent surgeon, a partial thyroidectomy having been performed, the operation being done upon the assumption, no doubt, that the gastric symptoms were a reflex neurosis from the hyperthyroidism. She made a good recovery from the operation, but experienced no relief from the gastric symptoms.

I ventured a diagnosis of pyloric or duodenal obstruction due either to contraction of an old healed ulcer or to adhesions about the gall bladder involving the duodenum or to pressure of a gall stone itself. An exploratory laparotomy was advised. After experimenting a week with gastric lavage and rectal feeding without improving the patient's condition, she submitted to a laparotomy.

The usual incision for gall-bladder operation was made, the pyloric end of the stomach drawn into the wound and the pylorus explored and found to be normal in every respect. There were some adhesions about the gall-bladder region involving the duodenum. An examination of the gall bladder revealed a stone as large as a pigeon's egg tightly grasped by the thickened contracted gall bladder. The gall bladder was opened and the stone was removed with great difficulty. There was no bile in the gall bladder and none appeared after the removal of the stone. The operation was concluded after the usual method in cholecystotomies.

The patient experienced but little shock and rallied well from the operation, but in 12 hours the pulse rose to 140, the temperature reached 104°. There was a slight cough and great dyspnea. Moist râles could be heard over both lungs. These unfavorable symptoms rapidly became more pronounced and the patient died on the second day, death being due to pulmonary edema. Autopsy not obtained.

CASE 2.—Cholelithiasis; operation, cholecystotomy; death from acute gastric dilatation.

Mrs. Mary H., aged 38, referred to me by Dr. Segerlund, of Caledonia, Ill. She gave the usual history of cholelithiasis, though hardly so pronounced as to be classed as typical. The attacks of pain were not of the sharp cutting character, but were of a dull, boring nature. There was some stomach trouble, occasional vomiting, but no jaundice.

Her attending physician had diagnosed the case as one of gall stones and recommended an operation. She entered the hospital April 17, 1904, and three days later I performed a cholecystotomy, removing about half a dozen stones from a very much contracted and thickened gall bladder. The gall bladder was stitched to the peritoneum with some difficulty owing to the contracted condition of the organ and as a precaution against leaking into the peritoneal cavity the Mayo gauze apron was anchored by several cat-gut stitches above the gall bladder and the free end brought out of the abdominal wound. The gall bladder itself was drained with rubber drain.

The patient did not take the anesthetic well, and during the operation vomited considerable bile. After recovering from the anesthetic this

bilious vomiting continued, large quantities of bile and mucus would flow from the mouth with but little effort at vomiting.

On the second day the pulse and temperature began to rise, the vomiting continued, the abdomen became tympanitic and the patient showed signs of exhaustion. The vomiting of large quantities of bile and mucus occurred very frequently, scalding the side of the cheek over which it flowed. Intestinal obstruction was thought of as a possibility, but soap suds and turpentine enemas removed large quantities of flatus, temporarily relieving the patient's distress, and there was no tumor palpable through the abdominal walls and no exaggerated peristalsis. The weak pulse and exhaustion of the patient seemed out of all proportion to any complication we were able to discover. She died on the third day.

At autopsy nothing was found about the site of the operation to account for death. One of the stitches holding the gall bladder into the abdominal wound had given way, but there was no leakage into the peritoneal cavity. The peritoneum was free from septic conditions. The stomach was greatly dilated and contained a quart and a half of bile and mucus. A half-dozen small gallstones were found in the cystic duct. The heart muscles were soft and flabby.

In the duodenum there was a constriction which at first sight I thought was an obstruction, but I was able to force gas and fluid through. I did not understand at the time the significance of this condition. Since studying the literature more thoroughly I have concluded that this was a case of acute gastric dilatation.

Ridel,<sup>1</sup> of Jena, speaks of various complications following laparotomy for gall stones. One of these he designates "excessive vomiting with subsequent dilatatio ventriculi acuta."

Of this condition Riedal says: "Now a condition simulating peritonitis further develops from colliquative vomiting after the operation as a result of acute gastrectasis. Either the ordinary emesis from the chloroform immediately progresses into a more severe vomiting, or the patient begins to vomit excessively twenty-four to forty-eight hours after the cessation of the anesthetic influence. At the same time there is a slight distension, first of the epigastric region, later also of the left umbilical or hypogastric region."

Acute gastric dilatation most frequently follows operations conducted under general anesthesia. Its mechanism is not fully understood. It generally is associated, however, with some form of duodenal obstruction. This obstruction, which appears at the lower portion of the duodenum, seems to be produced by compression of the duodenum upon the vertebral column by the root of the mesentery which passes over it at this point and which is drawn taut by the dragging of the intestines as they fall into the pelvic cavity.

According to Conner,<sup>2</sup> "the development of mesenteric constriction is favored, therefore, by whatever facilitates the entrance of the small intes-

1. Disturbances in the Course of the After-treatment of Gallstone Operations. By Prof. B. Ridel Jena, Germany. Translated by Dr. G. G. Eitel, Minneapolis. The Clinical Review, v. xxiv, p. 3. December, 1906.

2. Conner, L. A. Am. Jour of the Med. Sciences, March, 1907.

times into the true pelvis (dorsal decubitus, a mesentery of suitable length, an empty and collapsed state of the gut) and whatever renders the duodenum more liable to compression (increased lordosis of the lumbar vertebra, low position of the duodenum).

Great dilatation of the stomach would doubtless increase the liability to mesenteric obstruction by crowding the intestines into the pelvis, and would tend to prevent the escape of the gut from the pelvis, to render such obstruction when once formed more complete and permanent."

The great mortality (72 per cent.) is due undoubtedly to the fact that the condition is frequently unrecognized. Early treatment would save most cases.

In non-operated cases the knee-pectoral position would naturally suggest itself as a means to overcome the difficulty.

In operated cases, gastric lavage is practically the only means of relief. This treatment is also a preventive, for, if the stomach is frequently emptied, dilation can not occur.

In both of these cases I believe a cholecystectomy was indicated, though we can not say that the result would have been different.

CASE 3.—Cholecystitis, complicating pregnancy, mistaken for pernicious vomiting of pregnancy. Gall-bladder symptoms simulating gall stones. Operation, cholecystotomy; recovery. Later laparotomy for adhesions; death from hemorrhage of the liver.

Mrs. A. J. C., aged 35, referred to me by her physician, Dr. Fahrney, of Oregon, Ill.

This patient came under my care March, 1904, with a history of having had one child two and a half years previously and was then pregnant seven months. Since the beginning of the last pregnancy she had suffered frequently from violent attacks of vomiting associated with great pain in the upper abdomen. The suffering was so great that from  $\frac{1}{2}$  to  $\frac{3}{4}$  of a grain of morphin were taken hypodermically to procure rest. These attacks occurred so frequently that she lost strength rapidly and was confined to her bed most of the time. After one of these attacks she was sent to the hospital at Rockford, her physician thinking it might be necessary to induce premature labor to save her life.

She was kept in the hospital one week. All food by the stomach was prohibited and nourishment maintained by nutritive enemata. During this week she was comfortable, having had no return of the trouble. She improved in her general health and was allowed to leave the hospital to remain with her parents a mile distant from the city. Light diet was allowed with the privilege of a gradual increase to full diet.

One week from the time of leaving the hospital she had a severe attack of pain and vomiting and I saw her in the attack for the first time. A diagnosis of gall-bladder trouble was made—probably gall stones. Morphin relieved the attack, which was followed by tenderness in the gall-bladder region for several days.

She was placed upon phosphate of soda 1 drachm in a cup of hot water an hour before meals and one or two ounces of olive oil at bed time. With this treatment it was hoped to tide her over her confinement, after which the gall-bladder trouble could be relieved by operation. She was



allowed to return to her home. She improved much in health, although suffered several attacks. On the expected date of confinement she returned to the hospital, was soon after delivered of a healthy child and again returned to her home.

Three months later she suffered several severe attacks of the old trouble and returned to the hospital for operation.

Operation, Oct. 2, 1904, cholecystotomy. The gall bladder was thickened, dilated and adherent to surrounding tissues, but contained no stones. For one year the patient enjoyed excellent health and then returned, complaining of all the early symptoms.

An examination revealed a right-kidney displacement of the second degree. The kidney was replaced and held in position by a pad and firm abdominal supporter. Relief was obtained for another year, when pain and vomiting again appeared and the patient returned for relief.

Diagnosis: Gastric adhesions producing pyloric obstruction.

Operation, Oct. 13, 1906. The fundus of the contracted gall bladder was held firmly to the peritoneum at the site of the first operation and its side was adherent to the lower border of the liver. Numerous strong bands of adhesions extended from the gall bladder to the duodenum and pylorus, causing a misplacement and obstruction of these organs.

The adhesions were released and the gall bladder removed. Dr. E. W. Andrews' operation (cholohepatopexy, colon substitution) was performed. The abdomen was closed without drainage. Death followed on the third day, apparently from exhaustion.

Postmortem examination of the abdominal cavity was made. A number of blood clots were found and a large quantity of bloody bile filled the abdominal cavity. The bile had escaped from the cystic duct on account of the slipping of the ligature. The hemorrhage occurred from various points where the gall-bladder adhesions had been released from the liver.

Had a drainage tube been placed in the location of the severed cystic duct and the peritoneal cavity been protected by gauze tampon, the conditions at least would have been revealed and death possibly prevented. It is questionable, however, if we should have incurred the risk of a cholecystectomy, for it was the conditions induced by this procedure that brought about the fatal result.

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#### POSTOPERATIVE GALL-BLADDER AND GALL-DUCT FISTULÆ.

MILTON R. BARKER, M.S., M.D.  
CHICAGO.

A search of the literature can not fail to impress one with its poverty on this subject. The brilliant achievements attained by surgical procedures in gall-bladder and gall-duct diseases seem to have eclipsed, in a marked degree, some conditions that sometimes follow these procedures, and which are of great importance to both surgeon and patient, prominent among which are gall-bladder and gall-duct fistulæ. Possibly the paucity of the literature concerning this subject is due to the fact that a

large mortality is not consequent upon it; hence it is considered one of the minor accidents of major work. Whatever may be the cause of the silence, the subject is important and should receive the attention due it.

In a very large majority of these cases, they follow operations upon the gall bladder for cholelithiasis or for cholecystitis, in which a drainage operation has been done and in which the gall bladder has been attached to the abdominal parietes and used as a drainage canal for the rest of the biliary system. However, this is not the universal manner of their formation. They may form after cholecystectomy, the bile escaping from the cystic duct, the latter not being securely ligated the bile follows the course of the gauze drainage, forming a fistula, or they may form in like manner after operations upon any of the gall ducts.

These fistulæ are all classed in the literature under the general term of biliary fistulæ, though in a large per cent. of cases bile is not discharged through them. We believe a better nomenclature would be for a general term gall-bladder or gall-duct fistulæ, and, if necessary to be more explicit, add the character of the discharge. For instance, biliary gall-bladder fistula, from which term we would understand a gall-bladder fistula exists from which bile is being discharged, or a mucus gall-bladder fistula, which term would convey the idea that a gall-bladder fistula existed that was discharging mucus. For the purpose of being definite and certain, these fistulæ should be placed in three different categories: First, those that discharge bile or biliary gall-bladder or gall-duct fistulæ; second, mucus gall-bladder or gall-duct fistulæ, and, third, pus gall-bladder or gall-duct fistulæ. For, as a matter of fact, all of these conditions are found in practice and must be discussed and dealt with.

It is also true that the discharge from these fistulæ is never primarily the causative factor in their production or continuation. For instance, in biliary gall-bladder fistulæ, the bile that is discharged through them is never the underlying cause of the condition. The same may be said of the other varieties of fistulæ. In other words, the cause of these fistulæ must be sought for outside of the discharge itself.

While this is true, the discharge from these fistulæ is a very potent factor in determining the true cause and location of the condition. If the discharge is bile, our knowledge of the physiology and anatomy of the gall ducts leads us at once to locate the trouble either in the cystic duct or common duct. We know that the cystic duct is provided with from eight to ten valves or folds of mucous membrane distributed throughout its length and known as the folds of Heister. The normal action of these folds or valves, we believe, is to regulate the flow of bile through the cystic duct into the gall bladder, their action being controlled by sympathetic nerve fibers. When the gall bladder, however, is drawn out through the external parietes and fastened, the cystic duct is abnormally placed and for a time the nervous action that controls the folds of Heister are suspended and the bile flows more readily through the cystic duct into the gall bladder than through the common duct into the duodenum. The suspended action of the folds of Heister, however, is only temporary, and in the great majority of cases in from two to four weeks the normal action of these folds is restored, and the bile, no longer being able to

pass through the cystic duct into the gall bladder, passes through the common duct into the duodenum and the biliary fistula closes and the case is terminated. In quite a large per cent. of cases, however, the above program is not consummated. The valves of Heister do not regain their normal function and the bile continues to flow through the fistula until remedied by some surgical procedure. In these cases the function of the folds of Heister have been destroyed by the diseased condition before the drainage operation was performed; hence the bile continues to flow through the cystic duct and fistula uninterruptedly until remedied by surgical measures.

We have stated that the cause of biliary fistulæ may also be found in the common duct. We believe, however, that biliary fistulæ are never due to conditions of the common duct except in diseased states, the influence of which disease either suspends or destroys the normal action of the folds of Heister. In other words, if the folds of Heister are normal and working normally, there can not be sufficient hydrostatic force created by the accumulation of bile in the common duct to force these valves and allow a constant and free flow of bile through the cystic duct. Hence we believe simple mechanical obstruction of the common duct will not cause biliary fistulæ through the cystic duct. We believe that disease of the common duct may, in rare cases, destroy the action of the cystic duct, but that, as a rule, and in a majority of cases, conditions of the common duct can not be seriously regarded as the cause of biliary fistulæ through the cystic duct. Of course, there are cases of biliary fistulæ due to operation upon the common duct for diseased conditions, but in those cases the proposition is different, as the fistulæ are connected directly with the common duct.

When we have a condition of mucus gall-bladder fistula with which to deal, the cause will again be found in the cystic duct. In the drainage operation that has been done there may have been a stone overlooked in the cystic duct, or a stone may have entered the cystic duct from the hepatic duct after the operation, or the cystic duct may have been so attached to adjacent tissues by adhesions that when abnormally placed by the operation the adhesions constricted or bent the duct, or by abnormally placing the cystic duct by the operation, a kink was formed in it. Any of these conditions might occlude the duct and prevent the normal secretion of the gall bladder escaping through it; hence the gall bladder is filled with its own secretion which runs over through the drainage opening in its fundus, which condition will continue until remedied surgically. A purely mucus gall-duct fistula is hardly possible, the mucus will be mixed with bile if the mucus comes from the gall ducts.

When we are to deal with a pus gall-bladder fistula, the drainage operation has been in a very large majority of cases for draining a gall bladder that should have been removed. In these cases, among other conditions that might have been present, the gall bladder was chronically diseased, or a chronic cholecystitis was present; but in the judgment of the surgeon amenable to drainage treatment. This is an error of judgment only and may happen to any of us. The gall-bladder disease instead

of yielding to the drainage treatment, persists. The walls of the gall bladder become thick and contracted; the cystic duct closes for reason of the diseased condition in the gall bladder, and a discharge of pus from the bladder wall takes place through the fistulous opening in the fundus. Sometimes these fistulæ will close for a few days and then reopen and discharge a limited amount of pus, and then close again unless kept open by frequent dressings. This condition continues indefinitely or until remedied by surgical measures. These patients are comfortable while the fistula is open and discharging, but if it closes for any length of time they are in distress.

We also have a fourth form of fistula following drainage operations upon the gall bladder, the discharge from which varies. There is some mucus discharge all the time, but intermittently there is also a biliary discharge mixed with the mucus. From the nature of the discharge we are again able to locate the cause of the trouble. From the intermittent flowing of the bile we may safely conclude that the cystic duct is functioning normally, and from the flow of mucus we may conclude the mucous membrane of the gall bladder is healthful. Our attention will then be directed to the mouth of the fistula, and here we find the mucous membrane everted or rolled out, preventing the healing of the fistulous opening. This condition is due to an infiltration or swelling of the mucous membrane at the mouth of the fistula. The term fistula as used in this paper means an opening made in the gall bladder for drainage purposes that does not close in a reasonable time after the operation. In cases of biliary gall-bladder fistulæ, it may close in two weeks or not for a month. If it is open six weeks after the operation it should cause concern, and if not closed in two months surgical interference should be instituted.

In mucus gall-bladder fistulæ the system is not being robbed of any thing that is essential to it, and the time of surgical interference may be adjusted to suit the patient. In the pus fistulæ, as long as they are kept open and drain, the patient is comfortable and comparatively safe, yet it is the best practice to remedy this condition as quickly as possible.

In those cases where the rolling out of the mucous membrane at the mouth of the fistula prevents its closing, nothing is to be gained by waiting longer than a reasonable time. Kehr's conical plug may be tried in these cases before more radical measures are used.

As to the frequency of occurrence of postoperative gall-bladder or gall-duct fistulæ, we are not in possession of a multitude of statistics, neither can we exhibit extended data concerning this point, for the reason that such data does not exist. As before stated, the paucity of the literature upon this whole subject is remarkable, and especially upon this point.

Mayo Robson, after discussing biliary fistulæ due to conditions other than operative, states it would be of greater value if we could give statistics of the number of times that fistulæ follow operations, but this is seldom mentioned by operators. He, however, reports 536 cases of his own, 416 of which were cholecystotomies. Of the 536 cases, there were 18 cases of postoperative fistulæ, but, as five of these occurred in the first ten



cases, since which time the method of procedure has been changed, it is fair to say that 13 occurred in 406 cases, or in a little more than 3 per cent. of the cases. In my own work fistulæ have followed cholecystotomies twice in 40 cases, but none occurred until 30 cases had been operated upon. The cases in my own work are too few to be of statistical value standing alone. I believe, however, that we may safely infer that if this condition follows in 3 per cent. of the cases of Mayo Robson's work that this is the per cent. we may expect under the most favorable circumstances, and that under less favorable circumstances we may expect postoperative fistulæ in 5 per cent. of the cases in which drainage operations are done upon the gall bladder or gall ducts.

Kehr (v. Bergman's Surgery, vol. iv, page 693) states that in 700 operations for cholelithiasis he has not had a permanent fistula. He does not state how frequently they have occurred in his work or his treatment for the condition. We are only certain of two things, from his standpoint: first, fistulæ occur in his work, and, second, he is successful in their management.

The treatment of these different fistulæ is always surgical. When we are to deal with a biliary gall-bladder fistula we are always confronted with a serious condition. The patient can not be deprived indefinitely of his bile, neither are we justified in an endeavor to close the mouth of the fistula unless we know the common duct is patulous. We must open the abdomen and discover, if possible, the reason why the bile does not pass through the common duct into the duodenum. If there is an obstruction of the common duct we must remove the obstruction if possible. If, however, the normal action of the folds of Heister are destroyed, and the cystic duct is wide open, the bile may still flow through the cystic duct and out of the fistulous opening, even though the common duct is open, this being in this case the channel of least resistance. In such cases we can only finish our work and wait for results, hoping that the cystic duct will regain its normal function.

We may now resort for a time to Kehr's conical plug placed in the mouth of the fistula, thus forcing the bile through the common duct into the duodenum, hoping that the cystic duct will regain its function and terminate the case. If our hopes are not realized in a reasonable time, cholecystectomy is indicated, with a removal of as much of the cystic duct as possible. The channel of least resistance to the flow of bile being thus removed, the bile will flow through the common duct and terminate the case. If for any reason the obstruction to the common duct can not be removed, a cholecystenterostomy is indicated after loosening the gall bladder from its parietal fastenings.

If we have a mucus gall-bladder fistula with which to deal, we must try and remove the obstruction to the cystic duct and close the fistulous opening in the gall bladder after loosening it from the abdominal wall. If for any reason the obstruction to this cystic duct can not be removed a cholecystectomy is indicated.

In pus gall-bladder fistula the gall bladder has been functionally removed by the diseased condition and cholecystectomy is indicated.

When the fistula is due to rolling out of the mucous membrane at the mouth of the fistula, we must loosen the gall bladder from its parietal attachments and close the fistulous opening by folding in the mucous membrane and stitching the peritoneal coat over it. The mortality connected with these conditions is not so large as for corresponding operations for other diseased conditions. This is true because the patients are usually in a better condition for the second operation than they were for the first.

DISCUSSION ON PAPERS OF DRs. ALLABEN AND BARKER.

Dr. George N. Kreider, of Springfield.—Mr. President: I was in hopes that some one else would start the discussion on these two excellent papers, for they are among the most important that have been brought before the section.

We must commend Dr. Allaben for his great courage in coming before this society and acknowledging his failures. We all have failures, but we do not have the courage to come here and say that we have had them and also state, as Dr. Allaben has done, how we might have avoided them.

There is only one suggestion I would make to Dr. Allaben and to those who operate for chronic gall-bladder disease, and that is, in every case a blood count should be made. The condition of the blood should be ascertained, because we know perfectly well that there is no disease which has so marked an effect on the blood as disease which involves the liver. In all probability, in some of his cases, the blood was in such a condition that coagulation was absolutely impossible. I think we would save ourselves a great deal of chagrin and our patients a great deal of disappointment if, after making a blood examination and finding the hemoglobin in a bad condition, we tell them their prospects are very slight; that the best opportunity for operation has gone by, but that if they insist on an operation being done it will be done. I have had some cases of this sort in which it was not the fault of the patient, however, that an operation was undertaken. The gall bladder was found very much shrunken and backed up under the liver, so that the surgeon failed to find it at all, and some months afterwards the patient was taken with a tremendous hemorrhage from the stomach and vomited seventeen gallstones and a stomach full of blood. We waited some days in this case, did an operation, found the gall bladder, and removed 150 more stones. But the blood failed to coagulate after this intense poisoning; and the patient died on that account.

As regards Dr. Barker's case, I think that any one who has done any gall-bladder surgery will have to acknowledge that these fistulae occur and that their cure is not easy. One of my professional friends, whose name I will not mention, has just acknowledged to me that he had two more cases on hand, and I had to acknowledge two myself. One of these passed from my hands. Two operations were done by other surgeons in the vain endeavor to close the gall-bladder fistula. But probably one of them was undertaken with the idea that a gallstone was left behind. No gallstone, however, was found. Another surgeon made an attempt, but failed to close the gall-bladder fistula. I should like to have another chance to operate in this case, but I suppose I will not see the patient again.

I wish to congratulate Dr. Barker on bringing this important subject before us, as it has been instructive and interesting to most of us.

Dr. Edward H. Ochsner, of Chicago:—I do not believe that we ought to let the statement of Dr. Barker go unchallenged, namely, that the valves of Heister are responsible for the formation of biliary fistulae. I do not believe that they have anything to do with it whatever, but that there are other factors which cause the formation of these fistulae.

The most common causes of biliary fistulæ are obstruction in the common duct from stones, malignant growths or cicatricial tissue, obstruction of the cystic duct from the same causes, leaving behind foreign bodies in the gall bladder such as incarcerated stones, drainage tubing, lint from pads and unabsorbable ligatures, finally the thing that caused the greatest number of biliary fistulæ in the early operations for gallstones was the fact that the gall bladder was usually sutured to the skin or fascia. Since the gall bladder is being sutured to the perineum only, the number of persisting biliary fistulæ has become very small, indeed.

Among my own cases I have had only one such fistula and that was in a case in which I left behind an incarcerated stone. Some months ago I had a most interesting and, I think, rather unusual case. In a previous operation the gall bladder had been sutured to the abdominal wall on a level with the umbilicus, and the cystic duct instead of making a V with the common duct with the point of the V downwards made a V with the point upwards. As a result, it was easier for the bile to get into the cystic duct and flow out of the abdominal wound than it was for the bile to pass down into the common duct and into the duodenum. After the gall bladder was loosened and sutured into proper place higher up the wound healed promptly, while the previous two operations which had been performed for the relief of the fistula had been of no avail.

Dr. Allaben (closing the discussion on his part):—I appreciate what Dr. Kreider has said in regard to the blood test. I think it would be particularly indicated in the last case I cited, because in that case the vomiting, the pain and several operations the patient had undergone, together with the extra task imposed upon the system from pregnancy, reduced the patient's vitality and reduced the coagulating power of the blood.

I was surprised at the statement of Dr. Barker that these fistulæ are as frequent as he suggested, but, as Dr. Ochsner has pointed out, since we have learned not to stitch the gall bladder to the cutaneous surface or to the fascia, we very seldom get gall-bladder fistula. It is true, as Dr. Ochsner has said, that usually there is something present in gall bladder or cystic duct in fistula cases producing irritation or obstruction. In this connection I wish to cite the case of a woman, 62 years of age, who had a history of gall-bladder trouble of ten years' duration. Finally she had an acute attack of empyema of the gall bladder, simulating peritonitis. She was operated on, and the gall bladder relieved of six ounces of pus, drained, and five large gallstones were removed. The patient made a good recovery, but had a mucous fistula. The cutaneous wound would close occasionally, but when the gall bladder became full of mucus she would be distressed. It would break open or she would open the fistula herself to get relief. Two years later I did a cholecystectomy with the idea that the cystic duct was closed, and that removal of the gall bladder was necessary. There was present in the gall bladder a stone as large as a marble, enclosed in a pocket in the gall bladder in such a way that it was impossible to feel it or remove it at the time of the first operation.

Dr. Barker (closing discussion):—I had hoped this paper would bring out a discussion concerning the physiologic action of the folds of Heister. This, so far as I know, has never been the subject of discussion. We know these valves or folds exist; we are acquainted with their anatomy; we know their location. Nature never fails to provide the cystic duct with them. Do they have a function? If they have it is reasonable for us to suppose that they in some way regulate the flow of bile and gall-bladder secretion through the cystic duct. A great deal of study of this subject confirms me in this belief. The folds of Heister, in my judgment, are placed in the cystic duct to prevent the flow of bile into the gall

bladder, excepting as the secretion of the gall bladder is needed by the system, when these valves are opened by the nervous mechanism controlling them and the bile flows through the cystic duct (this being now the channel of least resistance) and mixes with the viscid secretion of the gall bladder, diluting it and rendering it more easy of expulsion by the feeble contractile force of the gall-bladder walls. I believe the secretion of the gall bladder, while it is not necessary to the life of the system, yet is essential to the highest degree of the system's well-being, and unless this secretion is delivered to the system as its needs demand its workings are impaired. We believe a closer study of the function of the folds of Heister will reveal some truths we ought to know, and we may here, with propriety, hint that out of this study the fact may be developed that the gall bladder is not a part of the biliary system at all, only so far as the bile possesses those qualities best adapted to rendering the gall-bladder secretion easy of ejection by the feeble muscular force of the gall-bladder walls. For a more complete discussion of this subject we would call attention to an article soon to appear in the *New York Medical Journal*.

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### MALARIA AS A SURGICAL COMPLICATION.\*

THOMAS M. ADERHOLD, M.S., M.D.

ZEIGLER, ILL.

*Diagnosis.*—Let us decide what is necessary before we can say that a patient has malaria. As diagnostic science advances we come more and more to the conclusion that only the finding of the hemameba malarie in the blood is the absolute diagnosis of malaria. Malaria is probably the only disease that will produce a chill followed by fever and perspiration every other or every third day at the same hour; the temperature returning to normal on the days between. A chill followed by fever every day at the same hour may be malarial, but is much less liable to be than one which appears every other day or every third day. Chills and fever coming on in the morning are more liable to be malarial than those coming on in the afternoon.

On account of the well-known action of quinin in malaria, it is thought by some that a temperature which subsides after its administration is malarial. This is an error, and this coincidence taken alone should never be considered as a point in favor of a temperature being malarial. Quinin alone when given in 20 to 30 grain doses will reduce a temperature, and after operation a temperature will often subside without any medication. If, however, we should find a case where a temperature preceded by a chill came on every other day or every third day at the same hour, and having existed long enough for the patient to have had three or more chills and which subsides at once under 20 or 30 grains of quinin daily, we can say, with as much certainty as is possible without demonstration, that this is malaria. It is a clinical diagnosis and can be considered as positive as a typhoid diagnosis without an agglutination test of the blood. In dealing with malaria as a complication, one sees this symptom-complex so seldom that the only safe procedure is to accept nothing as a diagnosis except the finding of the parasite in the blood.

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\*Read before the fifty-seventh annual session of the Illinois State Medical Society, May 21-23, 1907.



This is often a simple matter, but at times is extremely difficult. In a well-developed case with a specimen taken when large pigmented organisms are in two or three corpuseles in every field the diagnosis is easy. It is equally as certain that in an acute case with a specimen taken after the first chill before the fever has subsided with only a spore or a signet in 50 or 100 fields that the diagnosis is most difficult. Cases will appear at all stages between these extremes. One may often search an hour after the first chill, thirty minutes after the second and less than ten minutes after the third, before the organism is found.

It is an undecided question as to whether it is better to examine the stained or the fresh specimen to find the parasite. Circumstances make it easier to use one method or another. In the laboratory of the Zeigler Hospital we have made over 1,100 examinations since August, 1905. We have examined both stained and fresh specimens taken at the same sitting to see if all that was found in one could be demonstrated in the other. When Wright's stain came out prominently before the profession, we used it in over 200 examinations and then stained a number with it and azure II, which stain we had used in some 200 examinations previous to changing to Wright's. The comparison resulted in the adoption of the azure II as it is given in Wood's Diagnosis as being the simplest and most reliable stain. We have used it in 700 examinations since that time. A good microscope, with 1/12 oil immersion lens, substage condenser and mechanical stage, are essential in this work.

Regarding the merits of fresh and stained specimens for examination, we have come to the following conclusions:

1. In general, stained specimens are to be preferred, as they make a permanent record for future reference.
2. A negative diagnosis should not be made without examination for 20 minutes, each, of three fresh specimens taken twelve hours apart after the patient has had three chills or without the examination of two stained specimens taken in the same manner.
3. Organisms which contain movable pigment are easier seen in fresh specimens, and spores and signets are easier seen in stained specimens.
4. In fresh specimens, error is more liable to occur in mistaking crenating R. B. C., bacteria, or a small W. B. C. for the parasite.
5. In stained specimens, error is more liable to occur in mistaking débris, fragments of W. B. C., a small W. B. C. with granules, or an R. B. C. with decomposing granular stroma for the parasite.

The following cases have been selected from patients who had malaria during their surgical illness:

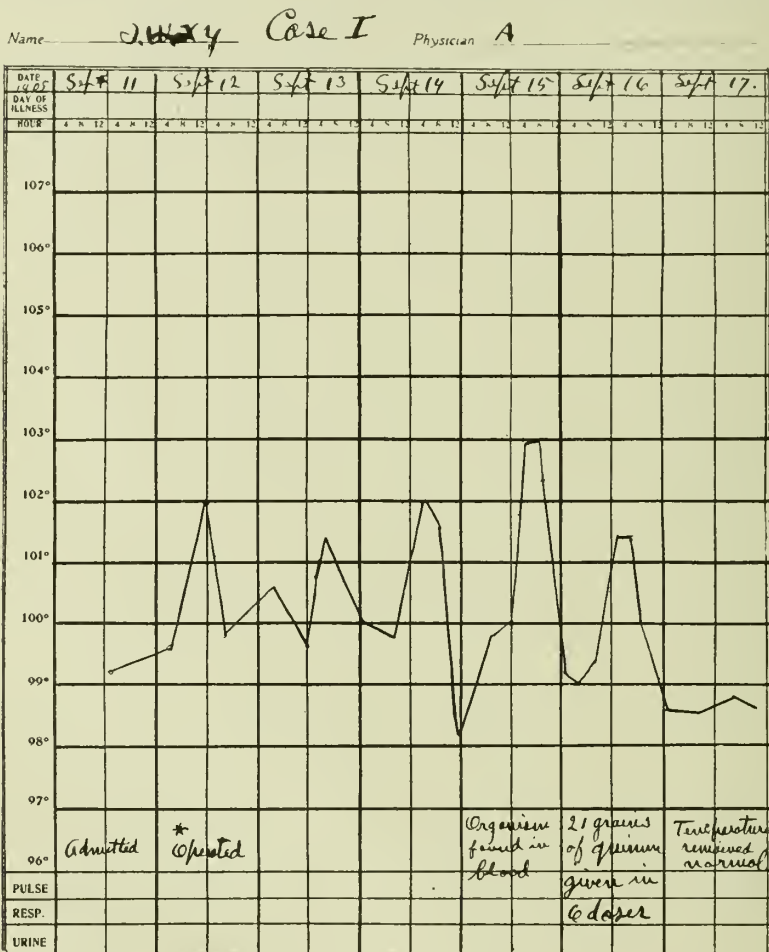
CASE 1.—*Diagnosis*.—Appendicitis. Admitted Sept. 11, 1905. Discharged Sept. 29, 1905. American, male, miner. No points of interest in previous history except he thought he had malaria some months previous.

Three months ago had attack of severe pains in abdomen which left a tender place near McBurney's point. Has had more or less trouble there ever since. Present attack began ten days ago; was similar to the first except was more severe and was nauseated. At the operation the appendix was found to be adherent to the cecum and contained two c.c. of pus near the middle portion. Wound was closed.

His temperature upon admission was 99.4 and on the morning of operation

was 99.6. There was a daily increase of temperature after operation until the third day it reached 103. Blood examination showed hæmamoeba malarie. Twenty-one grains of quinin were given within twelve hours. His temperature returned to normal and remained so. On account of the unpleasant effect of the quinin it was withdrawn and later given again. This patient suffered a relapse of malaria in May, 1906.

CASE 2.—*Diagnosis*.—Probable extrauterine pregnancy. Admitted Feb. 19, 1906. Discharged April 6, 1906. Family History: Father died of tuberculosis at 55. Mother living and well. One sister died during infancy. Cause not known.



Another died at 28 of some illness characterized by jaundice. Personal History: Had measles, whooping cough and typhoid fever as a child. Two years ago was ill with cough and soreness in right lung. Was told that she had tuberculosis. Began to menstruate at 14, painful, irregular. Married at 15, six pregnancies. First miscarried at 8 months, second at 6 months and third at 3 months. Fourth was born at term, labor and puerperium normal. Fifth also born at term, died at age of 2 after illness of 1 day. Is 6 months pregnant now, and felt life one week ago. Had malaria all last summer.

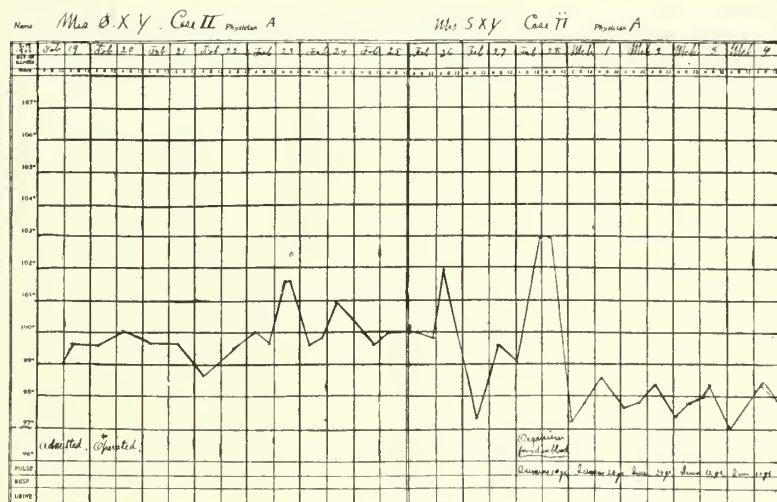
Present Illness: Eight years ago had illness characterized by a pain in right

lower quadrant. Was ill 3 or 4 weeks. Has had more or less pain in same place ever since. Two weeks ago began to have pains in same place. Pains at times were very severe. Swelling appeared and has continued to get larger ever since. Present Condition: Well nourished, appetite poor, bowels constipated, tongue coated, heart and lungs normal. A large palpable tumor in right side of abdomen extending from under ribs to pelvis and to median line. Uterus comes to umbilicus and can be felt to left of this.

Operating Record: Incision through right rectus. Tumor adherent to abdominal wall; opened; about one quart of bloody fluid and blood clots removed. Gauze and tube drainage inserted. Entire tumor mass removed.

This patient had a temperature of 99.6 at time of operation and continued to have. On February 26 it reached 102 and on February 28 it reached 103. A blood examination revealed the tertian parasite. Under quinin her temperature returned to normal within 12 hours and remained so. Patient was delivered at term and had normal labor.

CASE 3.—*Diagnosis*.—General bacteriemia. Admitted July 22, 1906. Discharged Dec. 31, 1906. Austrian, male, miner, aged 44. Was never ill. About



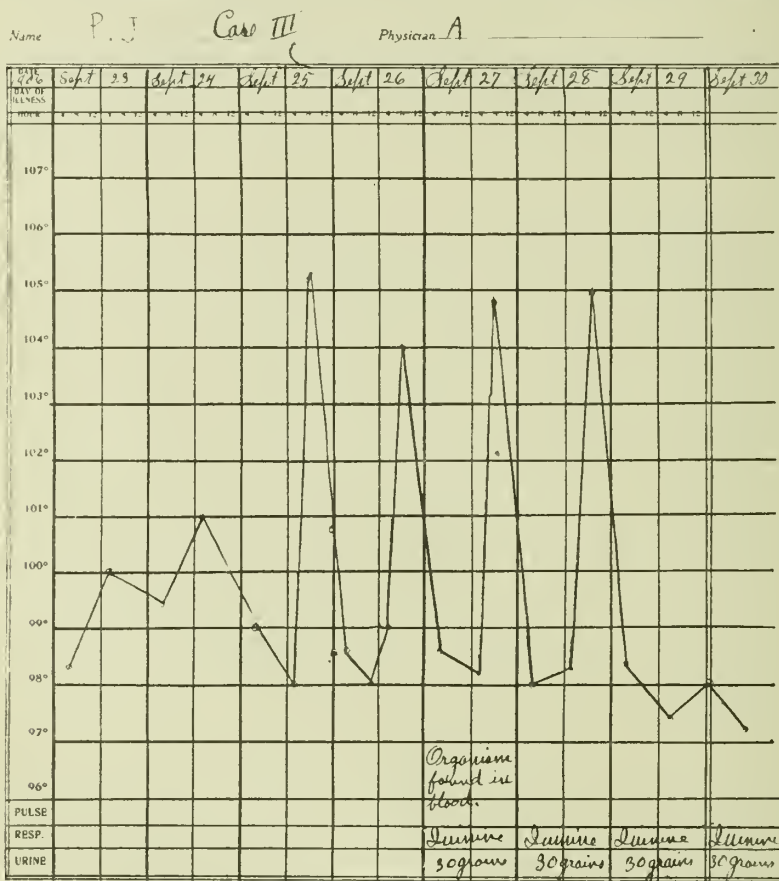
one week before admission noticed a swelling on right arm above elbow. No history of any injury. Swelling has become larger, red and painful, causing patient to seek relief. A small quantity of pus was removed by simple incision. Microscopical examination showed it to contain streptococci, tetraginus and staphylococci. A short time after this his right testicle and left knee became swollen. This subsided and he developed an osteomyelitis of the right humerus.

This patient's temperature was always irregular. On September 25 he had a violent chill, followed by a temperature of 105. The chill and temperature occurred again the next day and on the following day. His condition was apparently serious and a blood examination was made, more as a regular procedure for all febrile patients than that we expected to find malaria. To our surprise a double infection of tertian malaria was found. Within 48 hours after treatment was begun his temperature returned to normal and remained so. In all probability this man contracted his malaria in the ward or hospital grounds.

CASE 4.—*Diagnosis*.—Compound fracture of femur. Admitted June 15, 1906. Discharged Sept. 4, 1906. Austrian, male, miner, aged 23. No history of any illness. While at work had a mine drill thrust into the lower end of the right femur, breaking it into many pieces. Under complete anesthesia the fragments

were molded into form and a cast applied to the entire leg. This case ran a temperature and showed signs of sepsis from the time of accident. On August 21 he had a sudden rise of temperature and again on August 23. The every other day feature of the temperature caused a blood examination to be made. Tertian organisms were found. Thirty grains of quinin were given daily and after August 27 his temperature remained normal.

CASE 5.—*Diagnosis*.—Fracture of the skull. Admitted March 31, 1905. Discharged April 17, 1905; also admitted Sept. 25, 1905, and discharged Oct. 2, 1905. Hungarian, male, miner, aged 31. Could not speak English. No history of any previous disease or injury. While at work in mine was too close to a



blast when it was fired and quantities of coal were blown into his face and head. Many abrasions about face and head, the most severe of which was a cut 3 to 4 inches long on forehead, and fracture into frontal sinus. Was brought to hospital on stretcher and was semiconscious.

Treatment: All wounds were cleaned and scraped with sharp eurette. Fragments of skull were elevated and lower table examined. Wound was dressed open with a gauze drain.

This patient ran a temperature of 99 to 100 for 5 days and was discharged in 18 days. On September 25 we were called to his house by a messenger who said that he was dying. He was suffering with violent convulsions and was brought to the hospital on the stretcher. His friends gave a history of him hav-



ing had a chill every day for three days. A blood examination showed that he had estivo-autumnal malaria. With 30 and 40 grains of quinin in solution, given daily, this man had two more chills, after which time his temperature remained normal.

While epileptiform convulsions occur in estivo-autumnal fever, it seemed strange that this man should have them unless his late accident had something to do with it. It required a diagnosis between septic inflammation, traumatic epilepsy and malaria.

In the above cases it will be noticed that:

1. The temperature recurred with more or less regularity, which is characteristic of malaria in uncomplicated cases.
2. In all cases it disappeared in less than three days under quinin.
3. While the patient had a temperature more or less irregular before the distinct malarial temperature appeared, after treatment with quinin the temperature remained normal.
4. In Cases 1 and 2 the operation probably precipitated the attack of malaria.
5. Cases 3 and 4 probably contracted their malaria in the hospital grounds.

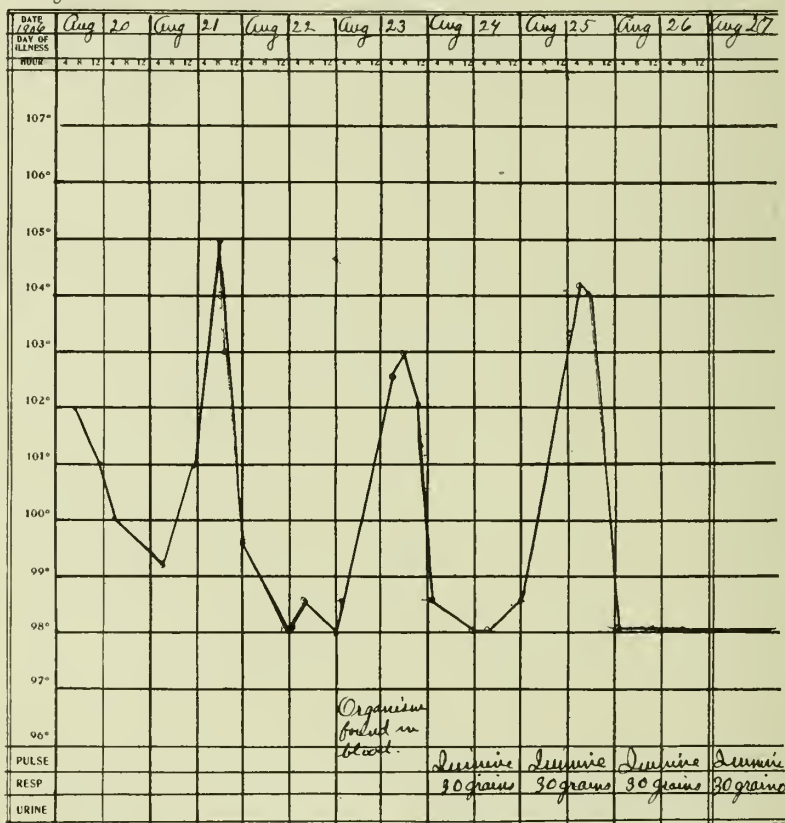
*Treatment.*—Quinin is the best known drug in the treatment of malaria. Next to be preferred is the fluid extract of cinchona, next iron and then arsenic. It makes no difference how the quinin is given if it is absorbed. The writer has not yet seen a case so severe that it could not be controlled by administration by mouth. If vomiting is severe, wait until it ceases, which will not be more than a few hours. Then give quinin hydrochlorate, either in solution or in capsules. The most effective way to give the sulphate is to dissolve it in nitrohydrochloric acid, making a solution m. i to gr. i, and then diluting with equal parts of water and spirits of chloroform so that one teaspoonful equals ten grains. Chocolate-coated tablets are more easily dissolved than the old-fashioned sugar-coated ones and, so far as the writer knows, have never failed to produce results.

How much shall be given in 24 hours? Thirty grains is sufficient for a man, 20 grains for a woman, and children can take relatively a much larger dose than is given them of other drugs. Of cocoa quinin, one teaspoonful every two hours can be given to a child of 4 years, until 24 grains are given. The administration of quinin should be governed more by its physiologic effect than by arbitrary rules. When the patient's ears are ringing from its action, he is sufficiently cinchonized to produce destruction of the organism, and it matters not whether it takes 10 or 30 grains per day to do it. The large daily dose should be reduced after the symptoms subside if it produces unpleasantness.

In this section of the country it will seldom, if ever, be necessary to give quinin hypodermatically, but, for the benefit of those who may want to do it, I wish to quote Benson from Manson's *Tropical Diseases*, page 159. In an experience of 1,390 cases, he says that hypodermic injections of quinin are by far the most effective and economical. He used the sulphate dissolved in water by the aid of hydrochloric acid, making the solution contain 15 grains per dram. Of this, he injected 20 drops under the scapula or into the outer surface of the arm. In 614 consecu-

tive cases so treated not a single untoward accident occurred. Manson says that he has used it in both hospital and private practice and that he considers abscesses as due to faulty technic.

How long should quinin be continued? In the benign tertian, three weeks is sufficient, but in the estivoautumnal three months should be the minimum. The amount given should be given in at least two doses, but may be given in as many as twenty-four. For a period of one year the patient should take from 15 to 20 grains daily for two or three days

Name J. P. XCase IVPhysician A

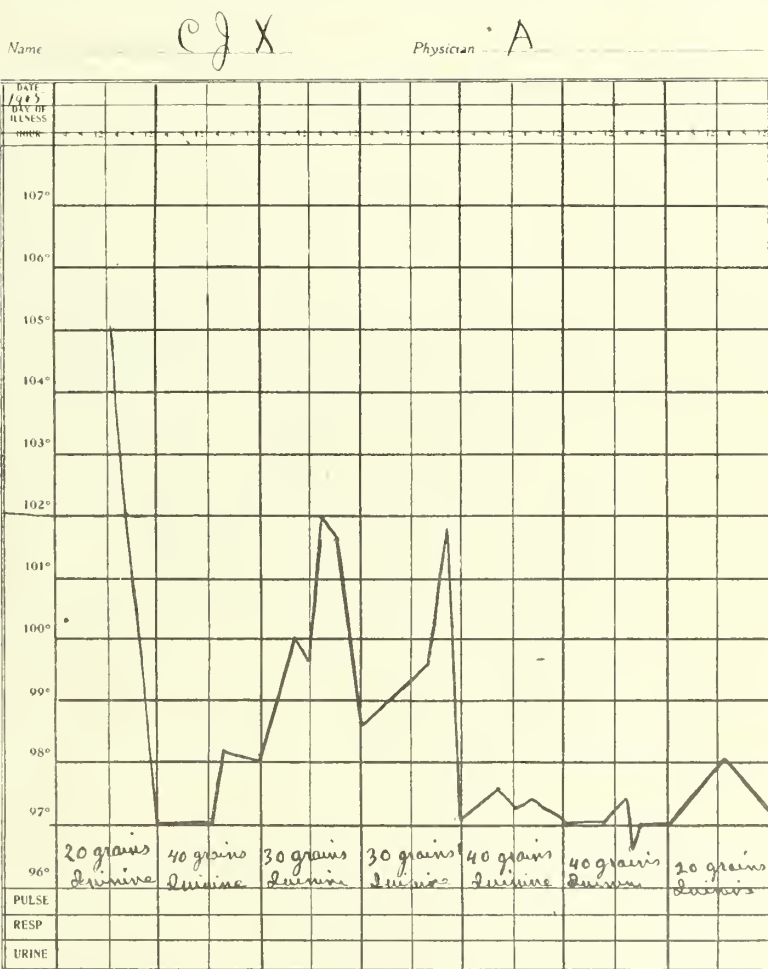
when subjected to either extremes of cold, heat or fatigue. I have never known of a relapse occurring when this course of medication was carried out.

The serum treatment of malaria has not yet been perfected sufficiently to be reliable.

Hygienic.—All measures which add to man's general resistance add to his power to combat malaria. Feed your malarial patient all he can eat of the very best and most nutritious food. Let him bathe every day and be out of doors as much as possible. When not too much cinchonized and after the acute stage is over keep him in the sunshine two hours.

morning and evening, for sunshine adds to the destructive action of quinin on the organism.

Prophylactic.—For all practical purposes there are only two abodes of the hemameba malarix. One is man and the other is the anopheles mosquito. Malaria can be completely eradicated from any community by destroying all of it in either of these abodes. Cinchonize the individual and drain the breeding places of the mosquito and malaria will dis-



appear. The most striking example of this is found in the German town of Dar-es-Salaam on the east coast of Africa.<sup>1</sup> By sanitation and forced medication they have reduced the prevalence of malaria to the minimum.

*When Should Malaria Interfere with Operation?* All cases of strangulated hernia and intestinal obstruction should be operated, disregarding the presence of malaria.

\* Military Surgeon, May, 1907 (Maj. Harris).

All cases of fractures, cuts and lacerations happening to those who are able to be up and about, but who may have a mild attack of malaria, should be treated surgically as though no malaria were present.

Malaria should interfere with operation in all cases of a chronic nature with an impoverished condition of the blood. This is especially true of those cases where there is a doubt as to the patient's ability to stand shock on account of anemia. Under large doses of quinin, such patients improve rapidly, and it may happen that after the malarial symptoms have disappeared the clinical picture may change and the original diagnosis be questioned.

#### CONCLUDING REMARKS.

1. Patients who harbor the parasite in their blood, but who show no acute symptoms of malaria can be operated without delay and later treated for malaria when the symptoms appear.

2. No temperature either before or after operation can be called malarial unless the parasite is found in the blood. If a temperature arises after an operation and no parasites can be found in the blood, it should be considered as due to sepsis and the proper procedures taken.

3. In our present stage of diagnostic science, malaria is a positive finding and, therefore, a diagnosis by exclusion is no longer permissible.

4. Malaria is a curable disease and quinin is the specific.

#### DISCUSSION.

Dr. Henry C. Mitchell, of Carbondale:—I dislike to see such a valuable paper as this one just read go by without being thoroughly discussed. What I shall say, however, will be in confirmation of what has already been said.

I have come to look upon cases of operation complicated with malaria with considerable concern, and it has been my custom for the past several years to have the blood examined of all patients operated in hospitals (in operations of convenience) for the malarial parasite, and when found to give the patient anti-malarial doses of quinin. In my opinion, many of these patients would go on indefinitely and never develop malaria if not operated upon and the powers of resistance lowered by the shock of the operation. Many of these cases do not develop temperature; but the malarial poison seems to expend its force by producing neuralgic pains at the seat of injury or operation.

Only a few days ago I was called to treat a man who had been kicked by a horse, fracturing the head of the radius and dislocating the ulna backward and also producing a compound comminuted fracture of the lower end of the humerus. I reduced the dislocation and adjusted the fractured bones and put them up in a proper splint. The man suffered excruciating pains, so much so that at the end of forty-eight hours I removed the splint and re-examined the arm, thinking that possibly the nerve had become caught between the fractured ends of some of the bones. The following day, however, the pain was worse than ever. I again removed the dressings under anesthesia and made a careful examination and found the bones in good position, very little swelling, and only half a degree of temperature. I reapplied the splint, but in four or five hours his wife called me up by telephone and said the pain was simply unbearable and that something must be done. Ever since receiving the injury the patient had been taking anodynes for the relief of the pain, but the effect would only last a few hours, and then the pain would return. I went immediately and obtained a specimen of his blood, exam-



ined it under the microscope and found the plasmodium. I at once ordered five grains of quinin given every two hours until twenty grains had been taken. After giving the third dose the pain entirely subsided and the patient slept for ten hours and was never again troubled with the slightest pain, only soreness. I could enumerate many cases that I have treated that ran parallel courses with the one just mentioned.

Dr. John B. Murphy, of Chicago:—I feel that this is too important a paper to permit it to go by without complimenting Dr. Aderhold on the presentation which he has made to this Society and the important points which he has made of concluding that the fever is not of malarial origin unless the micro-organisms are present. One of the errors too frequently made in the diagnosis of these acute infections associated with chills either before or after operations is to attribute the infection to malaria, particularly the cryptogenic types of infection and the infections that occur in association with the zones that are richly supplied with lymphatics, or the rich capillary zones.

The diagnosis of malaria, as the essayist has emphasized and called our attention to in the first section of his paper, in connection with cholelithiasis, is one of the most common and dangerous errors of this class—that is, a chill and fever unassociated with pain are usually called a malarial chill and fever, particularly when periodic in character, as is common in infections of the cystic duct and in infections of the common bile duct. The cases go on from year to year; they are treated for malarial chills with large doses of quinin, when if carefully analyzed may be recognized as of a different character from those that occur in connection with malaria. The patient may have one chill in twenty-four hours; sometimes he may have three chills in twenty-four hours. Again, there may be an interval of two or three days, or as many weeks or months, with the temperature remaining practically normal, and still it is a septic fever.

The other type of chill is that which occurs following operations on rich vascular areas as the corpus spongiosum or the subcutaneous angiomas of children. A mild infection causes an intense chill, with an elevation of temperature, which may continue for days even after operating on an angioma not larger than a nickel.

With reference to cryptogenic infections occurring after mild apparent trauma, and which cause chill and fever, I wish to cite one case that came under my observation at the Presbyterian Hospital. The patient, an Italian, had toothache; the tooth was extracted. There was no trouble for the next two days. On the third day thereafter he had an intense chill, but practically no pain or inconvenience except when he pressed his tongue to his jaw. The fourth day he had another chill, and following that an acute bronchitis. On his admission to the hospital (fourth day) a blood culture was made and showed pneumococcus. The subsequent course of events proved that he had a classic type pyemia, the result of a simple extraction of a tooth, with a pneumococcus infection of the alveolus. He began to have pain in his chest with a slight cardiac bruit which increased. On the fifth day we made a puncture of his antrum, withdrew some pus which gave a pure culture of the pneumococcus. On the seventh day he had another chill, followed by a right hemiplegia; after this there was a rapid formation of emboli with infarcts from infection implanted on his cardiac valves. He had gangrene of the right leg, two days later gangrene of the left leg, following day hematuria indicating infarct of the kidney, the case terminating fatally twelve days after the onset. Postmortem examination disclosed a septic vegetation on the mitral valve which had caused infarcts in his kidney, liver, spleen and occlusion of both iliacs and middle cerebral, all resultant from a pneumococcus infection of the antrum.

The differential diagnosis in this particular case was made on the careful examination of the blood, emphasized by Dr. Aderhold.

We have failed often to diagnose septic cholangitis not associated with pain or icterus. I wish to cite a case which emphasizes this form of infection; the syndrome of recurrent chills, high temperature, sweats, with periods of complete intermission running for days, weeks and months without the association of other symptoms of gall-bladder or gall-duct disease. I saw a patient in Pasadena, California, five years ago last March, who had had chills and fever up to 105° for eleven years. He had traveled all over the world to have these chills and fever treated. He had been given quinin, and occasionally, when large doses were given, the chills and fever would subside. When I saw him, in consultation, they were occurring about twice in twenty-four hours. In the three months preceding a period of two to five days would elapse without chills or fever. Cholangitic infection was suspected. He had never had a colic nor pain. He was carefully examined, and on deep inspiration he complained of a slight sensitiveness in the region of the gall bladder. After opening the gall bladder it was found to contain less than ten drops of pus. The gall bladder was so small that we could not introduce a drain into it. A rubber tube was sewed over the edge of the incision to keep it open. The patient has not had chills or fever since the second day after the operation, which was five years ago.

Calling a disease malaria without differentiating or finding its micro-organism is the most important point brought out in this excellent paper.

Dr. Vincent J. Cohenour, of Joliet:—Speaking of the complication of jaundice and gall-bladder trouble, I desire to say that, while I was in the Spanish-American Volunteer Army, twenty men of our regiment had malarial jaundice or chills and fever combined with jaundice. I had it myself, and there was no pain whatever over the gall bladder. There was malaise and other symptoms of malaria, and there can be no doubt about my having had malaria. About twenty men out of every regiment in Chickamauga Park and other camps had jaundice and malaria. I should like to ask Dr. Aderhold if he considers these surgical cases. Also his experience in treating them.

Dr. G. Frank Lydston, of Chicago:—I did not hear all of Dr. Aderhold's paper, but caught the trend of most of the discussion, and wish to emphasize the importance of making blood examinations in surgical cases where there is any elevation of temperature or chills, whether slight or severe, not only with reference to malaria, but as regards infections in a general way. I have in mind several cases that occurred in my own experience comparatively recently, which emphasize the necessity of making blood examinations in surgical cases.

We have been prone to attribute elevation of temperature and chills in our operative cases to a greater or less degree of sepsis, or, as has been pointed out, occasionally to malaria, particularly in cases that come from malarial districts, and too often we content ourselves with this presumptive diagnosis. Let me recount briefly the cases emphasizing the point of making careful blood examinations in the conditions under discussion.

The first case was that of a woman with renal calculus and abscess of the kidney. I attended her for an attack of severe nephritic colic lasting several weeks, as the patient's friends objected to an operation. The diagnosis was positive and the urinary conditions typical. An x-ray examination made by a previous attendant had disclosed a calculus in the kidney. I was unable to gain access to the x-ray picture. In the third week I became suspicious that the case was complicated by typhoid, and a Widal examination proved it to be so. I called Dr. Quine in consultation, and he assumed the medical management of the case. I later operated for a double suppurative parotitis, and eventually operated on the kidney and removed a calculus, so that my original diagnosis was correct.

In another case of undoubted nephritis following la grippe, a careful blood examination several weeks later disclosed the existence of a complicating typhoid.

I have now under my care a man, 55 years of age, upon whom I operated for incarcerated inguinal hernia and chronic cystitis. I performed a perineal section for the purpose of draining the bladder. It is six weeks since the operation was done. A blood examination one week after the operation showed typhoid. The study of the blood was made because of a persistent temperature and the knowledge that the man came from a malarial district.

These cases must occur more frequently than has been supposed. They emphasize the importance of careful blood examinations in operative cases where the slightest febrile complication or chill occurs. The plasmodium test in these cases does not prove that quinin will not be efficacious. My experience has shown that the administration of quinin is often effective where the existence of malaria can not be shown by the microscope. The special point I would emphasize is the necessity of careful blood examinations in our operative cases, and particularly with reference to the surgery of the genitourinary tract.

Dr. Edward H. Ochsner:—It has been said that quinin is a bad thing to give in cases of sepsis. I would like Dr. Aderhold, in closing, to state his experience in cases suffering from sepsis and malaria, how quinin affects them, and in what way.

Dr. Aderhold (closing the discussion):—I will by answering the last question first. Two of the cases of general septicemia and one of fracture of the femur, who undoubtedly had sepsis from the start, improved most remarkably under quinin administration, disregarding the statement in the literature to the contrary which I have read. It will also be noticed in the other cases that after the administration of quinin the temperature remained normal, although previous to its administration they had had some elevation of temperature, as most all operative cases do have. I can not say but that quinin is a good thing to give after operation if the patient has a temperature, but the fact that the temperature subsides, I wish to say again, under quinin administration, does not prove that the temperature was malarial.

As to Dr. Cohenour's experience, the only thing which could have been done to him would have been to examine his blood. If that was not done, to this day the Doctor can have some doubt as to what his ailment was. Jaundice usually appears with estivo-autumnal malaria much oftener than it appears with benign malaria. While many diagnoses of malaria have been made without the use of the microscope, yet in all cases where it appears as a complication, or a question arises, there will always exist a doubt in my mind as to the diagnosis unless the plasmodium was found.

In reference to pain in surgical and malarial cases, without temperature, I can remember now a medical case. A mother brought her little child, 2 years of age, to my office last winter. The child had had malaria the preceding year and apparently there was nothing the matter with the child except that it was anemic and cried. It had little or no appetite. The stomach was swollen. Blood examination showed that the case was one of malaria. I have seen young children in whom the plasmodium was not found under quinin administration regain their health, regain their appetite, and return to a normal condition.

All of the operative cases which I have had that had malaria as a complication, pain and everything else subsided under quinin. It seems to act as a tonic and as an anodyne. Of course, quinin may have some action as an anodyne, whether or not malaria is present. Nevertheless it is a good thing to know if a patient has malaria, and it can be given as a tonic if they do not have it.

## OPERATIVE INTERFERENCE IN ACUTE MASTOIDITIS.\*

LAURENCE R. RYAN, M.S., M.D.

GALESBURG, ILL.

So many papers have been prepared and read on the subject of mastoid disease and mastoid operations during the last few years that it might seem as if we had them *ad nauseam*. However, the disease is such a common one and the results are so disastrous, if the proper course of treatment is not pursued, that we may be pardoned for again bringing the subject to the notice of this important medical gathering. Nearly all the papers during the last few years have been along the line of developing the technique of the classical or radical mastoid operation in chronic mastoiditis. Acute conditions have been disregarded or have been placed in the same category with chronic cases as far as operative interference is concerned.

I assure you it takes no little courage in these days of extreme radicalism in operations to attempt to call a brief halt, to block the wheels of progress, as it were, for a short time, so that we have opportunity to view our surroundings and see if we are not rushing ahead too fast. So almost with trepidation I take up the consideration of a method or operation which our most radical operative otologists class as obsolete or obsolescent, but which, none the less, has stood the test of time and in suitable cases has been of wonderful efficiency.

In the discussion of this subject, I do not wish to speak wholly from the point of view of the specialist in diseases of the ear, but rather from the position of the general practitioner or surgeon who has not the requisite skill or experience to perform a radical mastoid operation, or who is so situated that a competent surgeon is not immediately available. The ordinary operator would stand aghast at the thought of touching the mastoid (a region sacred to the magic touch of the selected few) after he had calmly perused the writings of some of our recent authors on this subject. The array of instruments necessary and the elaborate technique demanded in the performance of this extremely dangerous operation is enough to appall the ordinary mortal.

The radical operation for acute or chronic suppurative mastoiditis contemplates the removal of the tip of the mastoid bone, scraping out of all the cells, opening the antrum, and curetting the vault, opening through the aditus ad antrum, chiseling out the posterior bony meatus, converting all into one large cavity. This cavity must be filled with tissue grafted from the cartilaginous meatus or from the surrounding skin. Such an operation frequently exposes the sigmoid sinus, which is often injured, and it endangers the facial nerve and the delicate parts of the internal ear.

From this brief description it is plain that no novice should attempt such an operation, and it is equally plain that no surgeon outside of the large cities has the technical knowledge and can command facilities for such delicate work.

\* Read at the Fifty-seventh Annual Session of the Illinois State Medical Society. May 21-23, 1907.



Some of our recent authors take the firm stand that in every case of acute suppurative mastoiditis the radical operation must be performed, except perhaps in case of young children. Is this true? Is there no simpler method that offers a fair chance of success and which can be performed by the ordinary physician? Is there no hope for the patients who are away from large centers of population? Is there no encouragement for the general practitioner? Must even the antrum be opened in all these cases? George F. Cott, at a recent meeting of the American Academy of Ophthalmology and Oto-Laryngology, reported four cases of acute suppurative mastoiditis which were cured without opening the antrum. Before I finish I shall report, in brief abstract, fifteen cases of acute mastoiditis cured by the Wilde incision, or Wilde's incision and opening the superficial mastoid cells. These patients ranged in age from 2 to 70 years. I do this fully realizing the extent to which the Wilde incision can be depended upon for beneficial results and appreciating in full its limitations. I do not wish my hearers to misunderstand my position and assume that I consider the radical operation unnecessary or its elaborate technique warranted, or that I consider the Wilde incision in any way beneficial in chronic cases. I am discussing simply operations in acute mastoiditis.

The possibility of opening the mastoid for the relief of suppuration must have suggested itself to the surgeon of very early times, but when we realize that then there was no suitable general anesthetic, or that antiseptics were unknown, it is not strange that nothing was done. The medical treatment has changed little since the time of Hippocrates. He advised leeching, irrigation and the use of astringents. From 1856 to 1864 was the experimental state in mastoid operations. From 1864 to the present has marked a new era. Tangible results have been secured.

Ralfinck, in 1656, and Realan, in 1677, advised opening the mastoid for the purposes of curing tinnitus aureum and catarrhal deafness, but evidently they did not have the courage of their convictions, for nothing was done.

In 1740 Valsalva used a fistulous opening in the mastoid for purposes of irrigation, but he never voluntarily operated. The French surgeon, John Louis Petit, was the first to really artificially open the mastoid to evacuate pus. He used a chisel and mallet and drill. He advised that it be done in cases of caries of the bone. Because his advice was not followed, and the mastoid was opened indiscriminately with the most disastrous results, the operation fell into disfavor. He was wiser than his confrères. In 1776 Jasser, a Prussian army surgeon, noticed that a mastoid abscess in a soldier opened spontaneously and finally healed. When the other ear of the same soldier was affected by acute suppuration he trephined the mastoid and got a communication with the antrum. By irrigation through this opening a cure was effected quickly. This operation was again heralded as a panacea for all diseases of the auditory apparatus, and because it failed it fell into disrepute. Jasser himself really believed that tinnitus could be cured by opening the mastoid. About the same time Wagstrom, a Swedish surgeon, performed the operation so

that he might syringe through the antrum. He failed signally. In 1791 John Just von Berger was operated upon for the relief of deafness and tinnitus. He died from meningitis. Berger himself thought the mastoid operation would cure the deafness and insisted upon having it done. For the next fifty years only a few operations were performed. Webber, in Hammelburg, once in 1824, but the operation was unproductive of benefit. The Jasser operation was repudiated by both physicians and the laity for many years, and mastoid operations were only revived by the advent of the Wilde incision about the middle of the last century.

Wilde's operation was suggested at a time when all operations were stigmatized and condemned. Whatever may be said for or against it as a scientific measure, it was instrumental in disarming hostile criticism and molding public opinion. Between the time of the greatest popularity of the Wilde incision and the publication of the Schwartze method, in 1873, advising the opening of the mastoid with chisels and gouges, numerous instruments were invented for the operation.

Turnbull and Crosby, in America, and Ludwig Mayer, in Germany, each perforated the mastoid in 1864 for suppuration. Crosby, finding no other instrument available, used an ordinary gimlet. Indeed, different forms of gimlets are used up to the present day by a few operators. In 1885 the Schwartze-Stacke operation superseded all others for chronic mastoiditis, and is still the method in vogue with more elaborate details and technic.

Nearly all our surgeons advocated the Wilde incision in suitable cases. Gross says: "Great relief follows early and free incision over the tender mastoid, the knife being made to grate upon the bone."

McBride says: "It is beneficial," and describes the method of performance. It relieves pain by depleting. It can not aid in the draining of the antrum unless the pus has passed from the antrum to the surface of the mastoid.

Gruber suggests it as a local blood letter, advising that the posterior auricular artery be avoided. He advocates keeping the wound open as long as is necessary. If pus forms, an easy exit is offered.

Politzer seldom uses it now. He performed the operation for mastoiditis occurring during simple acute middle-ear suppuration. In such cases the symptoms of mastoid inflammation frequently seem to quickly subside.

Buck reports that he has cured many cases by drilling a half-inch into the bone without reaching the antrum. The cure is effected by the action of the wound in the bone. He uses Wilde's incision in all cases where he thinks the disease can be aborted, relieve pain or evacuate pus. If relief does not come in a few days, the cells should be opened.

Schwartze nearly always performed the Wilde operation first in acute mastoiditis. If the conditions were not then relieved he removed the mastoid cortex.

Dench is not in favor of the incision. Says it acts simply as a blood letter and relieves tension. Says a general anesthetic is necessary because

of the pain. Internal incision is fully as efficacious as the Wilde, but neither are satisfactory.

Thus we see that nearly all the conservative men use the incision, but with proper limitations. All concede to it a proper sphere and recognize its advantages. It remained for Prof. Frederick Whiting, however, in his recent work on the modern mastoid operation, to reach the acme of vituperative abuse in discussing the subject. He is so unreasoning and vindictive in his attack, not only upon the operation itself as an unscientific measure, but upon all medical men who can say a word in its favor, that I was induced to offer these reports in refutation. I will quote briefly from his recent writings so that you may appreciate his attitude in the matter.

Whiting: "The historical interest which invests the evolution and development of any modern surgical measure must always remain a connecting link between the obsolete practices of antiquity, which now excite only amusement or disdain, and the most recent and remarkable technical results.

"Probably no surgical measure which had its foundation upon such frail surgical and anatomical supports ever enjoyed the distinction of a vogue so popular and prolonged as the Wilde incision, and as astonishing as it may seem it is none the less true that during the recent session of an Otological Congress this obsolete method of practice was still advocated as 'an efficient remedy for suppurative mastoiditis, and that its partisans were not merely an insignificant minority was afforded by a general and acrimonious discussion.' 'The only legitimate field for the Wilde incision was in the periostitis and mastoiditis of children.' Cortex was thin, osseous structures soft, and pus could find its way to the surface and could be evacuated by the Wilde incision. Sclerosis often followed in the healing process.

"The service of the Wilde incision was moral rather than surgical. It disarmed criticism when mastoid operations were stigmatized. But those who insist upon still prolonging its vogue should reflect that the measure was conceived in error, nurtured in complacent toleration of its utter inadequacy and is being perpetuated in obstinate disregard of the fundamental principles of surgery.

"As a general proposition we may affirm that whenever Wilde's incision is indicated a mastoid operation is imperative. I have had little success with it. Some cranial complications resulted because it did not give the relief expected.

"As a surgical measure it is simply a makeshift, an imperfect substitute for the mastoid operation and ought long ago to have been abandoned; but, like Banquo's ghost, 'it will not down,' and we are ever and again flouted by this turbulent specter, irritating to the progressive and scientific mind and of direful import to suffering and defenseless humanity.

"An operation for the timid and sloathful practitioner. It required no skill or precision, but at the same time it made a profound impression on the mind of the patient and thereby exalted the dignity and impor-

tance of the doctor, flattered his self-esteem and incidentally accrued to his financial advantage."

It is a good thing for humanity that we do not all think alike. One physician can not see anything good in a plan of treatment or an operation, because his bent is in another direction; another will follow the same plan of treatment and because of his accuracy of detail and enlarged patience will achieve the most satisfactory results. The distinguished author above quoted should not have characterized the operation as fit only for the tired and sloathful, or that it was performed simply to impress the minds of the patients and exalt his own dignity and flatter his self-esteem or incidentally to fatten his pocket book. Such language should be beneath the dignity of one who assumes to excel in scientific achievement. It is an insult to the whole medical profession. To revile a surgeon who used a simple method when it had proven to be efficacious, because he had not reasoned out a complicated one, is the height of absurdity. As well might we berate our great surgeons, Gross or Pancoast, because they never performed a gastroenterostomy. There are "fads and fancies" in medicine and surgery as well as in any other vocation. We have passed through the fads of curing hysteria by removing the coecyx, nervousness by circumcision, or removal of the ovaries or extirpation of the uterus. For several years half the patients one heard about had floating kidneys which had to be anchored. The "fad" has passed and the operations now occupy their proper spheres. Many supposed obsolete methods of treatment and operation have been revived of late years. They had never lost their efficiency, but had been covered by the avalanche of new and untried methods. A hundred years from now probably some unreasoning and misguided individual will deride us for the crudeness of our thought and methods of procedure, when we vain would consider ourselves fairly scientific.

"By their fruits shall ye know them." I give below a brief account of fifteen cases of acute mastoiditis, many of which had gone on to supuration long before I saw them. All of the patients were subjected to the Wilde incision. There was complete recovery in every case, and there was but one trifling complication, viz., the cutting of the posterior auricular artery, which caused no bother aside from a quite severe hemorrhage until it was controlled by packing.

CASE 1.—Baby G., aged 3. Has had several attacks of earache and discharge from ear for four months. Right ear stands out from head. Red and painful. Discharge from ear. Slight increase in temperature. At first visit ordered antiseptic douche for ear. June 1 child fell and injured swollen ear. Parents averse to operation, but, as no appreciable improvement occurred in two weeks, Wilde's incision was made under general anesthesia. Large quantities of thick pus was evacuated. Wound packed. Removed packing on following day. Slight discharge of pus. Moist dressing was kept up for a couple of weeks.

Final recovery. Case was seen but five times.

CASE 2.—C. P., aged 5. Saw case first Feb. 15, 1900. Had acute coryza. Closure of Eustachian tube. Purulent otitis. Pain, etc. Local antiseptic ordered, used by parents. Case reported well in a few days. March 12, 1900, swelling appeared behind ear; no pain. Hot applications ordered. March 15 slight discharge and swelling worse, but general condition better. March 17, 1900, performed Wilde's operation under general anesthesia. Evacuated pus.



Packed wound and kept it open for a few days. Steady improvement followed and in two weeks was completely well. No further complications.

CASE 3.—D. H. D., child, aged 4 or 5. May 11, 1898, called in consultation. Child had had cold in head and discharge from ear, pain and fever. Immense swelling behind ear and extending out to eye. Did a Wilde's operation at once. Large quantities of pus evacuated. Wound packed and allowed to heal gradually. Complete recovery in a few weeks. No return of trouble. General anesthetic used.

CASE 4.—March 21, 1896, first visit. W. P., baby, aged 4 or 5. Was treated for several weeks by a brother physician for ordinary purulent otitis media. Suddenly mastoid abscess developed. Large fluctuating tumor. Great depression, high fever. Child almost comatose. Did a Wilde operation at once. Scraped bone superficial and kept wound open a few days. Fluid would pass from meatus through the mastoid opening. Recovery was complete within two or three weeks. General anesthetic used.

CASE 5.—Robert K., child, aged 3. Saw case first time March 12, 1901. Several days prior mastoid abscess had followed an ordinary purulent otitis media. Usual signs present. Elevation of temperature, restlessness, immense swelling behind right ear. Fluctuation. Wilde's incision immediately performed, and pus evacuated. General anesthetic used. Usual plan of keeping wound open for several days followed. Recovery was complete and satisfactory in ten days or two weeks.

CASE 6.—Oscar E., aged 16, student. Saw case first Jan. 22, 1901. One visit. Mastoid abscess had existed for three weeks and followed a cold in head and purulent otitis. Jan. 22, 1901, performed Wilde's incision under local anesthesia (eucain). Pus easily evacuated. Wound had to be dressed for two weeks. Wound healed completely. No discharge from ear in three weeks from time of operation.

No recurrence or noticeable scar following operation.

CASE 7.—Miss C., school girl, aged 12. March 25, 1894, saw case first in consultation. There was moderate elevation of temperature, but great pain in region of mastoid. Slight discharge from ear, which was previously profuse. Diagnosis of acute mastoiditis made. Advised Wilde's incision, which was at once done under general anesthesia. The relief from pain was immediate and continuous. The wound was kept open and irritated with oleum tiglii for several days. Recovery was complete both as to the otitis media and mastoiditis.

CASE 8.—Baby P., aged 2. About April 14, 1899, had tonsillitis with involvement finally of middle ear and mastoid cells. When I saw the case first, April 20, 1899, the child was almost comatose. There was a large swelling behind ear, side of face was edematous and right eye was closed. Decided to operate at once. Made deep incision into mastoid, opening cortex with scalpel. Marked relief at once. Temperature, which had been 102, fell to normal in a few hours. The wound was kept open a few days and dressed antiseptically. The improvement was gradual and complete within a week or ten days as far as ear was concerned. Severe intestinal indigestion debilitated child for several weeks, however. There was metastatic abscess of elbow before operation on ear.

CASE 9.—E. T. S. M., aged 27. Two weeks before I saw patient, Oct. 26, 1892, he had his right inferior turbinated body deeply cauterized by another physician. Severe reaction followed. Inflammation extended back, involved the middle ear and finally a mastoid abscess developed. This case was severe. There was marked elevation of temperature, nausea and intense vertigo with pain and swelling. Performed Wilde's operation under local anesthesia. Evacuated an ounce and a half of pus. Scraped superficial mastoid cells. Within a week from time of operation patient had fully recovered. The hearing in ear has been diminished, but there have been no complications in fifteen years. I see the patient almost daily in our city and can verify all the results.

CASE 10.—Clem F., aged 30. Consulted me March 19, 1900. Six weeks before this he developed a purulent otitis, with final involvement of the mastoid cells.

Exact time of formation of mastoid abscess could not be ascertained. There was discharge from meatus when I first saw him, but slight swelling over the mastoid. The pain, however, was severe. The ordinary local counter irritants having no effect after a trial of a few days, I performed the Wilde incision in the usual manner, using cocaine anesthesia. Pus was found burrowing high up under scalp. There was immediate relief from pain. In ten days the wound was allowed to heal, as there was no further formation of pus. A mucopurulent discharge from the meatus was kept up for a couple of weeks, but ceased under proper treatment. In this case it was possible to inject fluid from the mastoid through the meatus.

CASE 11.—Martin D., aged 35. Saw this patient first March 18, 1904. For several days he had been having severe otalgia, with swelling about the ear. Examination showed redness of the left drum, but no bulging. Inflammation not sufficient to warrant lancing of drum. Advised local treatment to be carried out by the attending physician. On April 1, 1904, swelling of mastoid was quite marked, but there had been no discharge from meatus, nor had the drum ruptured. April 1, 1904, I performed Wilde's operation under cocaine, going down deeply and loosening up the periosteum. The relief from pain was immediate, and the swelling reduced quickly. There was no pus found. Within two weeks the swelling had disappeared and all the stiffness of neck was gone. This case must certainly have been one of those unusual ones of primary mastoiditis.

CASE 12.—Mrs. L. J. D., aged 25. First saw case Feb. 24, 1896. Three weeks prior had purulent otitis media. Discharge suddenly ceased and three days after mastoid abscess developed. Performed Wilde's operation under local anesthesia. Scraped superficial cells. Recovery was rapid and complete. This patient had been kicked in the face by a horse prior to her coming to the hospital. Her jaw was broken and side of face badly injured, but no connection could be traced between the mastoid abscess and the injury.

CASE 13.—O. E. N., aged 35. Consulted me March 19, 1905, for mastoid abscess. Had been under treatment with another physician for ten weeks for discharge from ear. Suddenly the discharge ceased and a large swelling appeared over mastoid. I did a Wilde operation, using cocaine anesthesia. No pus was reached at time of operation, but two days later it flowed freely. In this case the pus had burrowed deep in the tissues of the neck. Operation done March 22, 1905. With antiseptic dressing and syringing a cure was perfected in four or five weeks. There has been no return in two years. In this case fluid could be forced through meatus from external opening in mastoid, indicating severe destruction of the cells and cortex. No recurrence in two years.

CASE 14.—J. K., aged 70. Two months before I saw patient he was taken down with double lobar pneumonia, complicated with purulent otitis. A month before I saw him a mastoid abscess developed. The swelling extended down the neck. There was a profuse discharge from the ear which could be increased by pressure from the outside. This patient was too debilitated for a general anesthetic for the performance of a radical operation. So I decided on a Wilde incision, opening the parts freely. This I did under cocaine anesthesia. Large quantities of pus were evacuated and immediate relief was given. I had to go down two and a half inches before pus could be located. Antiseptic fluid could be injected into middle ear through incision in neck, showing necrosis and breaking down of cells. This case made a rather tedious recovery because of the involvement of the tissues of the neck before operation, and also because of the debility of patient from pneumonia and cardiac disease.

CASE 15.—Mrs. G., aged 75. For two months before I saw her she had periodical attacks of slight discharge from left ear, with intense pain in ear, neuralgic in character. Temperature irregular. Fluctuating from normal to 102. There was great debility. On my first examination the ear drum could not be seen. The meatus was swollen and boggy, especially the upper half. The mastoid was slightly tender, but there was no swelling. Because of the great age and debility of the patient a general anesthetic could not be used. I followed an expectant plan with counter irritation for a few days without success. Finally I made a

free incision within the meatus from the drum outward at the superior portion with some relief to patient. A few days later, however, I was forced to make a Wilde incision, loosening up the periosteum freely. Within a few days the antrum evacuated itself of pus through this incision. Within three weeks all discharge had ceased both through the mastoid and meatus. Nor has there been any further trouble in eighteen months.

This paper presupposes that all the usual antiphlogistic measures have been resorted to during the period of purulent otitis media which preceded the mastoid involvement. When it is evident by the sudden cessation of the discharge from the meatus, or its great diminution, elevation of temperature, and severe pain in ear and tenderness over the antrum, that the mastoid has become involved, the most vigorous measures should be resorted to. The bowels should be opened freely and heat should be applied to the mastoid region, in connection with leeching or wet cupping if possible. Cold, according to Ballanger, has no efficacy beyond two hours. If this does not give relief, a Wilde incision should be made. This operation will require a general anesthetic in children under 15, but a local anesthetic will suffice in all above that age.

The incision should be made one-quarter of an inch behind the attachment of the concha, and should extend from near the tip of mastoid upward fully an inch. The scalpel should be pushed through the periosteum and the incision completed in one stroke. In young children more care must be exercised, as the bone is soft and the cortex can be easily cut through. If pus has not already formed, the wound should be irritated by croton oil and kept open with a gauze pack. If pus has already formed and is working through the cortex, the superficial cells can be scraped, and in many cases this effects a cure. If a communication has been established through the mastoid cells and antrum it is possible to irrigate through to the meatus. The lancing of the drum, even though it has already perforated, is exceedingly beneficial both for purposes of drainage and as an antiphlogistic measure. I have not found the incision through the cartilage of the meatus as beneficial as the Wilde incision. It is harder to perform and is exceedingly painful. Then, too, it can not be kept open so easily as the external incision, nor does it offer such a ready means of escape for the pus when it forms.

Ballanger has recently pointed out that there is a great deal of misconception as to the way these incisions act in the case of disease. They are more than blood letters. They increase the inflammatory process, encourage hyperemia and leucocytosis. They are Nature's aids in the production of leucocytes to repel the invasion of the bacteria. They also offer to the pus a point of minor resistance for exit.

If the Wilde incision and the ordinary antiphlogistic remedies fail to give the desired relief, then the cells must be cleaned out and the antrum opened. In such an event the Wilde incision can be utilized for the more severe operation. I have never had occasion to do this nor have I had any complications, such as chronic otitis media or disease of the meninges, follow in its wake. So, in conclusion, let me say that there is a legitimate surgical field for the Wilde incision, as I have shown by the fifteen cases reported. Naturally it has its limitations of usefulness



and should not be pushed beyond those limits. It has no efficiency in chronic mastoiditis and should not be resorted to in such cases. Such cases demand a radical operation, and such operation should not be attempted by any one who has not repeatedly gone through the elaborate technic on the cadaver. The radical operation, however, should not be resorted to until it is evident that milder means will not prevail. The benefit to the patient should be the main consideration.

#### DISCUSSION.

Dr. F. G. Stubbs, of Chicago:—As the writer of the paper has said, Wilde's incision, like Banquo's ghost, will not down; but, it seems to me, after listening to the paper and to the recital of the cases in detail, the reason is self-evident. That this treatment was resorted to either as the result of mistakes in diagnosis or else from the surgeon's dread of the necessary operation. If the anatomy of the mastoid was gone into, it would give us a clue as to the reason why incision external to the mastoid cells would not avail. In all cases of inflammation of the middle ear we regard it as a fact that the antrum and aditus ad antrum are involved at the same time as the middle-ear cavity, called the tympanic cavity. They are simply compartments of one general cavity and necessarily the inflammatory changes involve them at the same time, though they may be more marked in one than in another. There is always tenderness on deep pressure around the neighborhood of the middle ear. Many times this symptom can be elicited on pressure over the bone as well. But the cases which go on to suppuration of the mastoid cells arise from the fact that the infection has extended into the cells from the antrum. There is swelling of the lining of the channels leading from the antrum to the cells, the pus can not escape through the antrum, and we have an abscess under pressure, an empyema so to speak. Under this pressure there is first a destruction of the soft parts, the lining of the cells, and if we wait long enough a necrosis of the bony walls themselves. No general surgeon would think, for a moment, of relieving a case of acute osteomyelitis by making a superficial incision over the bone involved, nor should the otologist do otherwise with a similar condition in the case of an abscess in the mastoid cells. The reader spoke of the Wilde incision as though it would avoid the necessity of doing a Stacke-Schwartz operation. I think that in itself shows his misconception of the nature of and the necessity for doing a simple mastoid operation. A radical mastoid operation (Stacke-Schwartz) is one that is done for an entirely different cause, and that is almost always for chronic suppurative otitis media. But from the title of the paper we are dealing with an entirely different thing, pus in the mastoid cells. If we have pus there it must come out, either externally or internally, and it should be our aim to see that it comes externally and promptly. No superficial incision will do this. If the incision finds pus it must be carried on into the cells and all necrosed bone removed. The mere fact that the patient got well after a Wilde incision proves nothing. As I said before, we find many times this tenderness over the bone in cases in which simply the antrum is involved and the mastoid cells not affected. If, instead of making Wilde's incision, you make a free incision through the membrana tympani and take means to limit the degree of inflammation in the antrum you would have better results with no external operation which was not needed.

Dr. Arthur Mario Brianza, of Chicago:—I wish to say that a paper on this subject is misleading to the general surgeon. I claim that in a case of true mastoiditis we can not reach the seat of the disease through a simple incision. I presume, from the description of these cases, that the mastoiditis had gone on to degeneration of the wall of the mastoid cells, so that with a lancet one could pierce the bone very readily; but when that stage is reached it is too late to do a mastoid operation. A mastoid operation must be done before that, to eliminate all danger of it. If we allow the disease to go on until softening of the bone takes place, and then go in with an ordinary lancet and make Wilde's incision, it may



do in some cases, but we generally lose the patient. It requires more than the ordinary scalpel to enter the mastoid cells, and when they are infected it is necessary to go in and open them up. It is not necessary to make a radical operation except in long-standing cases of tubercular osteomyelitis of the bone. In those cases we must do a radical operation; but in acute cases of suppuration of the mastoid cells, where the external wall is stronger than the other, you are liable to have a meningitis previous to the discharge of pus from the Wilde incision.

Dr. Ryan (closing the discussion):—I expected to get some criticism of the view I advanced in my paper, but I am very sorry, however, that I was unable to finish it. I overran my time and had to leave out a good deal of the paper.

I understand the pathology of mastoiditis and all the conditions accompanying it; but if the gentlemen will remember I simply took a stand against the attitude of those who claim that in every case where Wilde's incision was indicated a radical mastoid operation was imperative. I also stated that if the cases were not relieved by Wilde's incision, then it was necessary to do a radical operation. Speaking of a radical operation, I tried to point out that a great majority of men throughout the state were so situated that they could not command the facilities for doing a radical operation, and I have shown by the reports of these cases that there are a great many of them that can be relieved and absolutely cured by a simple incision. If I am wrong in that, all right. I have simply given that as against the statement of Whiting, who says that a radical operation should be performed in every case. In complicated cases I admit that the Stacke-Schwartz operation should be performed.

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## OTITIC BRAIN ABSCESSSES.

A REPORT OF THREE CASES.\*

FREDERICK K. SIDLEY, M.D.

PEORIA, ILL.

In presenting this paper and the report of three cases to you, I do so not because I have anything new or of great importance to offer that will assist you in the future management of similar cases, nor do I expect that it will in any way fill in the gap that seems to exist in the surgery of otitic brain complications, but I do present them because I believe that every case of otitic brain abscess, whether successful or fatal, should be reported to assist in completing accurately statistics of a literature which, although not neglected, has only begun to receive the systematic attention it deserves, since Macewen drew aside the curtain in his treatise, "Of Infective Diseases of the Brain and Spinal Cord." Intracranial surgery has advanced until to-day there is a marked improvement in the prognosis of a disease that only a few years ago was universally regarded as hopeless. Fourteen years have now elapsed since this brilliant treatise was given to the world, and since then no great work has appeared to guide us, no brilliant observer has dealt as exhaustively as the array of accumulated facts concerning this branch of surgery would seem to justify, and our advancement and added knowledge has come from individual case reports, they in themselves being of the greatest value to us, but lacking in detail as to pathology and surgical technic.

The three cases that form the basis of this report were all cases in private practice, were operated on under the best of conditions at the

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St. Francis Hospital, Peoria, and comprise all the brain abscesses upon which I have operated, each being performed under essentially similar conditions as regards surgical procedure, administration of anesthetic, antiseptics and the like. All were abscesses of the temporo-sphenoidal lobe, two of them following a chronic suppurative condition of the middle ear, the other a result of an acute condition, and in all three cases the operation upon the mastoid and the intradural operation over the abscess was completed at the same operation.

The cardinal symptoms in all my cases, as will be seen from the case reports, were intense and continuous pain, vomiting of a cerebral type, depression with progressive mental dulness, eventually passing into a stage of coma. Case 1 and Case 3 were operated upon during the stage of coma, Case 2 during a period of considerable mental dulness. My surgical technic has been the same in all three cases, with absolute cleanliness both of myself, my assistants and of the operative field. Gloves have been worn, and ether given by the open method has been the anesthetic used, and in no case were we compelled to resort to artificial respiration. The following three cases will explain more fully the above:

CASE 1.—Miss S., aged 6.

*History.*—The left ear had troubled her since the age of 4, following an attack of scarlet fever. There was discharge during the greater part of the time, which would cease for a week or two. Saw the case first time on Jan. 10, 1905. Examination showed small amount of pus in the auditory canal, with fair size perforation in anterior-superior quadrant, walls of canal swollen, with tenderness on pressure over mastoid. She complained of considerable pain, temperature 101.5°, pulse 92. Paracentesis was performed under chloroform, and the next day she was almost free from pain, with considerable discharge from middle ear, and her temperature had dropped to 99°, pulse dropping accordingly. I did not see her again until January 17, the family physician in the interval reporting considerable improvement. On the 17th I was called hurriedly and found the patient suffering intense pain, with a marked degree of mental dulness, having had one convulsion. The pupils were equal, contracted but reacted to light. There was a marked degree of pain on pressure over mastoid, temperature 99.4°, pulse 102, and operation was advised and accepted. Before the operation was commenced she had had two more convulsions, had passed into almost a state of coma and had had considerable vomiting, forcible in character.

*Extradural Operation.*—The radical operation was performed under ether in clearing out the diseased mastoid tissues. The antrum was found filled with pus and a considerable degree of necrosis along the roof of the middle ear. After the completion of the operation the cavity was flushed with 1-4000 bichlorid solution, dried and then packed with iodoform gauze, and an incision made through scalp over squamous portion of temporal bone above the external auditory meatus.

*Intradural Operation.*—A trephine opening was made through the squamous portion and the opening enlarged with bone forceps to about one inch in diameter. The dura appeared ashen in color, but there was no bulging outward. The dura was then flushed with absolute alcohol, dried and a small opening made with a knife, care being taken not to injure the vessels of the cortex which, being forced by intracranial pressure, might lie in close contact. This small incision was enlarged and extended by a fine blunt-pointed pair of scissors, and through the opening a slender, sharp, pointed knife was passed into the brain substance at the fourth insertion in an upward direction about an inch into the brain and lying almost under the upper border of the trephine opening, the abscess was located. The opening through the skull was enlarged by bone forceps and a slender pair of dressing forceps was then introduced into the abscess, the blades gently opened

aud about half an ounce of pus and sloughing brain tissue evacuated. A fair size wick of iodoform gauze was then introduced for drainage, a moist boracic dressing was applied and the patient returned to bed. Hot bottles were placed around the patient, a small amount of normal salt solution thrown into the bowels and Crede ointment used.

January 18: Temperature almost to normal, still in a comatosed condition, no convulsions, but vomited twice since operation. The dressings were changed and removal of drain was followed by a considerable flow of pus and sloughing brain tissue, redressed with iodoform gauze drain, mastoid wound found in good condition.

January 19: Evidence of imperfect drainage, still unconscious, removal of drain brought forth a quantity of pus, forceps were inserted and gently opened which was followed by escape of considerable pus and tissue. A tube was now used as drainage, being held in place by sutures into scalp.

January 20: Patient seemed about the same in the morning, but about noon developed convulsions, the temperature rose to 104.4° per rectum and she died before night. No autopsy was permitted.

*Remarks.*—To what extent is an operator justified in making exploratory incisions into the brain substance in his effort to locate an abscess? And would tubal dressing used from the beginning have proven of greater value than the gauze dressings as drainage? The question of extent of exploration, to my mind, must rest entirely on the previous history of the case and the condition of the patient at time of operation. Abscess of the brain, wherever situated, if not evacuated, is fatal, and, as all non-operative cases die, I believe a carefully trained surgeon is justified in erring on the side of over-operation than that of too conscientious a fear of injury to the patient and thus fail to explore the parts thoroughly. Regarding tubal drainage, I am firmly convinced that the use of such dressing would have drained the abscess better and prevented blockage of the drainage from necrotic tissue which appeared on the third day.

*CASE 2.—History.*—Miss A., aged 38. Right ear. Chronic discharge from ear since a girl, has had several attacks of so-called gatherings in head which have broken. Examination at office, October 10, showed considerable discharge from ear, which was foul in odor, with sinking in of superior wall of auditory canal. There was considerable necrosed bone in middle ear, but no tenderness over mastoid. Advised operation, but refused. Did not see her again until November 26, a period of forty-seven days. Had been in hospital during interval under physician's care for low type of fever. At re-examination in my office she complained of considerable headache and pain centered in ear. Condition about the same as when first seen, excepting pain, some tenderness over mastoid and troubled with forgetfulness and some mental dulness. Advised operation, which was accepted two days after the examination when all her symptoms were pronounced, with some gastric disturbances added and progressive mental dulness, temperature 99.2, pulse 80.

Extra- and intra-dural operation November 30, seven visitors, under ether. Radical operation performed. Entire mastoid exposed, cells and antrum found filled with pus and granulations, with extensive necrosis of roof of attic. The lateral and sigmoid sinus were exposed in our efforts to remove all the diseased tissue, and the sigmoid was found somewhat forward. No tympanic membrane or bones of middle ear found, and the tympanic cavity was filled with granulations. In the roof of the antrum there was a fistula opening, leading upward, which, on being probed, drained pus with considerable force. This fistula was opened with a chisel and bone forceps and the skull removed for about an inch, the dura exposed and considerable bulging found. The mastoid cavity was then



packed with iodoform gauze, the exposed dura flushed with alcohol, dried and a slender knife passed through the dura into the abscess. The moment the knife passed dark blood, pus and necrotic brain tissue spurted fully an inch in height. Forceps were then used to enlarge the opening and brought forth an astonishing quantity of abscess contents. Tubal drainage was used in this case, the tube being stitched to the scalp to hold it in place, and a large moist dressing applied.

December 1: Patient considerable better, mental dulness clearing. Pain only on pressure, but a continuation of gastric disturbances, temperature normal, pulse 78. Dressing changed, followed by quantity of dark blood and pus. Tube reinserted and calomel given in divided doses.

December 2: Improvement continued, although slight increase in gastric disturbances, due probably to the calomel. Dressings were changed and a small cerebral hernia was found protruding from the opening in the dura above the tube, with some granulations. These granulations were cauterized, the mastoid cavity repacked and the tube left in place, as drainage was fairly good and on account of the presence of the hernia. Temperature and pulse the same.

December 3: Patient continued to improve, condition of hernia about the same, gastric disturbances almost gone, bowels moving freely. Dressing changed, tube not disturbed and granulations again cauterized.

December 4: Same improvement, mental symptoms and gastric disturbances gone, lessening of discharge with some shrinkage of hernia and beginning of the disappearance of granulations. Tube removed from fear of obstruction, but was replaced for drainage. Mastoid cavity repacked. This daily procedure was continued until December 7, when, the hernia having disappeared and the discharge considerably lessened, iodoform gauze was used in place of the tube for drainage, and on the 10th, the discharge having ceased, under ether, the mastoid wound was closed, and the patient left the hospital on the 20th in good condition.

*Remarks.*—This case is interesting for two reasons—first, because of the small degree of mental involvement present when the size of the abscess and the quantity of pus discharged is taken into consideration, which may be explained partly by the fact that the abscess was of the chronic type whose rigid walls did not yield to the collapsing pressure of the surrounding brain, and, second, because of the rapid shrinking of the small cerebral hernia which protruded and which disappeared by the seventh day, probably being incorporated with the scar tissue.

**CASE 3.**—Master M., aged 18 months.

*History.*—Left ear. Began two weeks before operation with pain in left ear. child extremely restless, cried considerably and, according to parents, had high fever until the fourth day, when a little discharge was found coming from the ear and the pain and fever were reduced. This improvement was continued for a number of days, when he grew rapidly worse and was seized with convulsions, two seizures, and passed into a state of coma. Another physician was then called into case and found the child in a state of coma, cervical muscles very stiff, head thrown back, and child showed signs of considerable pain on pressure over mastoid, temperature 103.4°, pulse very rapid. I was asked to see the case, and on examination found considerable pus in the auditory canal which seemed to bubble through from the middle ear, swelling of skull over mastoid and a pronounced swelling over squamous portion of temporal bone. The child was in a state of deep coma, with retraction of cervical muscles, and both pupils were dilated, and there was a slight muscular twitching, and the parents reported some vomiting before stage of coma was reached; temperature, 99°, pulse 108. A diagnosis of infectious meningitis, due to brain abscess was made, the parents advised of the almost hopelessness of the case and an operation proposed as the only procedure, which was accepted and the child removed to the hospital.

Extradural operation April 16 under ether, which was given only a few drops at a time. The mastoid was opened and the involvement found very extensive.



The antrum was found filled with pus and softened bone found above and posteriorly. The cavity was then cleared of diseased tissue and flushed with bichlorid solution, 1-8000, dried and packed with iodoform gauze.

Intradural operation. An incision was made over swelling above ear, a  $\frac{3}{8}$  trephine opening was made through the skull, and the dura was found ashen in color, thickened and bulging. From the symptoms, which pointed so clearly to a brain abscess, it was expected that one would be entered at the first incision. The dura was opened with knife and scissors and as many as fifteen exploratory incisions made in all directions without locating the abscess. I did not feel justified in exploring the brain further, and the dura was replaced and a moist dressing applied, the external wound being left open, and the child returned to bed and an ice pack placed to the head.

April 17: Patient seemed in same condition. On removal of dressing, pus was found on gauze, and a cotton-tipped probe was passed through dural opening and pus discovered coming from an upward and backward direction. A small tubal drain was used, placed in direction of pus and the scalp opening repacked. This was in the morning. During the afternoon the packing was removed and no pus found. Drain removed and intracranial end found covered with pus. A slender pair of forceps was introduced in direction of pus, opened considerably and a good size tube introduced between the blades for drainage. No anesthetic given, as patient was in deep coma.

April 18: Considerable pus found on gauze and in tube, which was not disturbed. Patient about the same, except beginning running off of bowels and increased muscular twitching.

Evening: Patient worse, twitchings were almost constant and every sign of approaching death present. The packing was examined and found covered with pus, which was changed. The child died during the night. Autopsy refused. Bacteriologic examination, mixed infection.

*Remarks.*—Here, without question, to my mind, was a case of meningitis, due to brain abscess, which, in turn, was due to a suppurative condition of the middle ear. Clinically, according to Smith, we distinguish between epidemic, suppurative, tubercular and serous meningitis. Meningitis from aural disease differs from that due to other causes chiefly in that the symptoms are more severe and may be relieved by operation. Here we had the rigidity of the muscles of the back of the neck and retraction of the head, with convulsions and muscular twitchings and a deep stage of coma, and the condition of the patient, with the pronounced swelling over the temporo-sphenoidal lobe, was indicative of brain abscess to both Dr. Parker and myself. Here, again, the question is asked regarding exploratory brain incisions or punctures. The abscess was not located at the time of operation, although careful search was made in all directions. We know that the abscess was there, because pus drained through the dural opening within twenty-four hours, and on placing tube for drainage in the direction of pus considerable was drained before death of patient, yet fifteen exploratory incisions did not find evidence of it. Could the encephaloscope have located it?

*Conclusion.*—Surgical interference in brain complications due to ear disease is unsatisfactory in a large percentage of cases. This is chiefly due to the fact that the symptoms and serious condition are not recognized until the focal symptoms have become established and the meninges involved. Brain abscesses have an unknown (as to time) beginning and many develop from diseases of the tympanic cavity that are regarded as

simple and not serious. All discharging ears should be considered serious, and the first step in the treatment of any brain complication from ear disease is the prompt diagnosis and treatment of the first discharge.

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### THE MENTAL ELEMENT IN HEALING METHODS.\*

ALVAN F. BUCKNAM, M.D.

WARREN.

In 1866 I heard Prof. Austin Flint say: "Gentlemen, there is much more in the practice of medicine than the administration of drugs." The truth of this statement appears from a notice of the drugless methods that have prevailed in time past and are in vogue to-day. The record discloses the most amazing credulity of our ancestors, remote and near. The laying on of hands, the touching of sick with religious rites, or an appeal to the supernatural to drive out the devil of disease, fill a large place in the doings of mankind. St. Augustine healed a sick man by the laying on of hands. Edward, called the Confessor, in the tenth century, was the first to cure scrofula by the royal touch. Consciously or unconsciously, medicine men and priests have availed themselves of facts observed in the working of the human mind to accomplish cures or attest a belief in miracle or dogma. Men still wander after strange gods attracted by the spell of marvel and mystery. There is in human nature an unspoken reverence for the unusual and wonderful; we can always believe what we want to believe, and sick men are what they have always been, easy victims for the unscrupulous and pretentious. If only the qualities of the healer or preacher be dominant enough, he will find the fields white with harvest.

Each and every sect has cured its thousands, and can produce their testimony to the fact. People still journey to shrines and to the French Grotto at Lourdes to plunge in its dirty water and be cured. They use all the contrivances of metalo-therapy cult, electropoise, electric belt, magnetic soles, etc. The success of these drugless pathies and cults is astounding, but the explanation is easy. They all claim a working formula of their own; they hold aloft a banner with the strange device, "Excelsior;" but they are all birds of the same feather. It is the mental element in them all that makes for success. The law of suggestion or an appeal to the psychic and emotional element in our nature is the basis of some of the cures in regular medicine, and all the cures in mental sciences and faith cults and prayer cults, shrine cures and Christian Science. The giving of drugs suggests certain results and the attitudes and words of the physician contribute to the end in view.

The mental healer, who advises his patient to relax himself into a receptive mood and allow certain supposed forces to radiate through his body, suggests to him an actual result. He lays his hand upon the afflicted part of his patient's body, and by act or word or thought is able to suggest to answering cells in his brain that a marvelous influence emanates from his touch. In all this diversity of practice from those who

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\* Read before the Jo Daviess County Medical Society, July, 1907.

may claim to supernatural power to the physician who gives a placebo, we can discern a real philosophy, which is, that one mind may control another to aid the self-repairing powers of Nature; that real physical changes can be wrought by mental influences; that pain may be relieved and disease controlled by tactful suggestions.

People do not get well simply because they are told to get well, but because a certain influence is brought into action and a corresponding result ensues. It may be much of a truism to assert that mind controls bodily function for better or for worse. We have always assented to this truth, but faintly comprehended it in a therapeutic way. To-day the statement seems to have a larger meaning. The phenomena of psychical research have opened a mine of veritable wealth for many a novelist; it is the foundation of all so-called "New Thought" literature of the day. Along with the progress made in the pathogeny and therapeutics of disease, we are coming to better appreciate that vagaries of mind and psychical facts have much to do with physical ills, and that the ideal environment of the sick man is one that ministers to his hope and tranquility of mind. Now, we allow that men of dominating mind and positive force of character are able to use the facts of mental therapy for their patients' good. Observe that they do this by persistent appeal, by persuasive control of the patient's mind, to the exclusion of all ideas contrary or adverse to the one presented.

In a considerable number of cases in the practice of all, it is impossible to divorce the psychologic from the pathologic. Ever and anon the problem presents itself, how shall we hold the undivided attention and faith of the patient so as to direct bodily function and molecular change in the direction of health. More and more the thinking part of the world is beginning to understand that the subtle ethereal current of a thought wave is the most prevailing power in Nature.

Some students of the chemistry of thought assert that measurable changes can be produced in the secretions and excretions of the human body by an effort of the will; that certain activities of mind pertaining to the emotions, such as anger, jealousy and hate, result not only in anatomical alterations in cell and tissue, but that they furnish definite and deadly products which, precipitated and injected into the veins of a guinea-pig, will cause its death. If this be true, it follows that physiologic processes of health and disease are psychologic and can be altered by mental processes.

How often we have seen a patient convalesce from some long and critical illness and then honestly reflected upon the doubtful value of drugs and the substantial aid of a strong will or hope or faith that held its grip in the contingencies of the future, till the ship of life outrode the storm.

The study of mental conditions and the working facts of mental philosophy have eliminated the probability of most of the reputed miracles in the church and out of it. It has banished much of superstition with its imaginary harpies that have terrorized the lives of men. What was once attributed to agencies of an occult nature and the exploits of

wandering spirits is now known to be the result of one intelligence acting upon another or upon its own bodily functions.

The condition that obtains in the subject of suggestion, who yields himself to the control of an idea, is the same in kind, though not in degree, as that in the person hypnotized. It stops short of profound sleep, but is effective in the same way; indeed, it is said that hypnotists in the case of some subjects find their suggestions as effective during the waking hours as during sleep.

The cause of suggestibility seems to lie in a strong concentration of attention upon an idea, which appeals to centers of the brain, and which often leaves the subject without normal control of his faculties, and so incapable of sober judgment. This is a common occurrence in every-day life. You meet a beggar who solicits alms. If he knows his business, he may appeal to some group of cells in your brain with such convincing force as to put all other groups of cells out of commission. Pity stirs you, you can think only of the poor plight of this beggar, you feel like giving to every beggar you meet; but other thoughts intervene, you remember that beggars are sometimes frauds, and this may be one—so you hesitate. Some orators and preachers, some church beggars and stock grafters, and salesmen possess this power of appeal or suggestion in an unusual degree. The tones and modulations of voice conquer you as surely as Cæsar conquered Gaul. A striking appearance, a pleasing manner, is irresistible. Now this idea of succession of thought, through a harmonious contact of mind with mind, is interwoven in all our conception of men and things; it is the normal habit in public and private life; it is the wheel on which progress makes its way; in the reforming of character, in the practice of teachers and moralists, or in those wonderful transformations of character, under the influence of some terribly earnest man, who fills the mind of his hearers with the stir of fearful emotions, with solemn conceptions of life and duty. In times of epidemic and pestilence, it is said that many die of fear and expectation alone. The dying curse of some victim of unusual wrong has followed its perpetrator to the grave, and the imprecation of many an old witch has proved the faithful prophecy of retribution. A nun, in a freakish way, commenced to mew like a cat. Presently all the nuns mewed in cat-like harmony till only vigorous measures sufficed to end the concert. Have we not known of some man, in times of riots and mobs, who has risen up before a murderous multitude and with the magic of voice and word stayed its tumult and rage?

One of the best examples of hypnotizing speech occurred in a London court. The prisoner had confessed himself guilty of theft. The judge appointed a rising young lawyer to defend him; this he did with such skill and eloquence that the jury brought in a verdict of "not guilty" in spite of his confession. Thus it is that mind conquers mind as surely as muscle conquers muscle. For good or ill, the thought of one man takes possession of another to the exclusion of all other thought. Sometimes that domination is so extreme that the subject becomes a crank or enthusiast; one single idea takes possession and runs riot with all his mental



belongings and all rivaling thought. No tyranny is so exacting as the tyranny of an idea. If it be a desire to accumulate, the subject becomes a miser or a thief; if it be a conviction of duty in religion or morals, he is a fanatic; if it be in some imaginary ailment of the body, he needs the art of some controlling mind. And so this trait of human nature, this interdependence of mind on mind is the fertile soil in which flourish all the isms and cults of warped and biased minds. It is at once the strength and weakness of our God-given heritage.

Concerning another proposition, it is obviously true that a state of mind produces a corresponding condition of body. Dr. John Hunter said: "I am confident that I can fix my attention upon a part of my body until a sensation is produced in that part." Many persons can so concentrate their attention upon an organ or part until more blood flows to it; it will measure more in circumference, its sensibility will be increased, and a delicate thermometer will indicate an increased temperature. Dr. Wier Mitchell testifies to this fact.

Ideas precede all emotions, all pain and pleasure. Grief will arrest the process of digestion, anger will poison the secretions of the body, and fear has paralyzed many a heart. The sight of inviting food stimulates a flagging appetite. The mental image of a glass of liquor to a drunkard will provoke an insatiable thirst. Vomiting and catharsis may be produced by the belief that medicine has been taken. Plainly the painfulness of pain is aggravated by the belief that it is destructive or dangerous, and the disagreeableness or disagreeable things largely depend upon our attitude toward them. Indeed, any state of mind or condition of body which is considered imminent and is expected with any degree of confidence is likely to ensue. The agony of death would lose much of its forbidding nature were it not for the continual dread with which we are accustomed to invest it. To the man who wants to die, death has no terror. Only with this view of the entire pre-emption of the mental faculties with an all-absorbing idea can we understand how Dr. Dowie could be sincere in the monstrous doctrine which he seemed to believe, or how it was that martyrs and witches in the olden times attained to a condition superior to pain, while they endured tortures horrible beyond our power to conceive. It is often remarked, "That fellow has told his lies so many times that he actually believes them himself."

Once in the army I was called on the battlefield to attend an officer of the Sixth Regular Infantry who was said to be wounded in the abdomen. Lieutenant Nolan was a brave officer and gave a good account of himself after the war on the plains. I found him lying on his back and unable to move. I found that a ball had simply grazed a line of three or four inches across his abdomen, and when I showed it to him he said: "By Jove, that's so," and then got up and, unaided, returned to the firing line. Some years since I was called to Monro, Wis., to remove a cancerous breast from an old and reliable patient. She was feeble and anemic, had been in bed six weeks prior to that date. When I produced the anesthetic, she obstinately refused it, because I had previously given it to her, and she had suffered three days from nausea. During the opera-

tion she never once flinched or gave a sign of pain. This was, of course, a case of autosuggestion.

I am told that specialists often die of the same affection which they have long treated; as if, indeed, the group or picture of symptoms, so long constantly before them, had photographed itself, so to speak, upon the retina of their brain, to be reproduced afterward in bodily expression.

Writers upon psychic subjects assume that we have two minds, the objective and the subjective, the conscious and the subconscious—that is two separate entities operative each in its own sphere. The one, the objective, acts through the senses. This is the mortal mind of Mrs. Eddy in Christian Science. It is the mind with which we do the business of life, with which we become conversant with the outer world, and which dies with the body; the other, the subjective mind, which acts through the involuntary and automatic centers of the brain, and is independent of the senses. This is the mind which controls the bodily functions of sensation, circulation, respiration and all the molecular changes of waste and repair, and this is the human soul that survives the body. But this division of the brain is hardly warranted by the facts of anatomy and physiology; for we have not simply a single brain or a double brain, but many brains, unnumbered groups of brain cells, a cell for every thought that ever come out of the soul of man; and these, all bound together by nerve fibers into one harmonious whole and working together in happy accord.

From the cells of this subjective part is evolved our consciousness, all original intuitive thought, all conviction and belief which determines our endeavor and which controls the normal functions of the physical man: and this thought is as much the result of cell activity as electricity is the result of the magnetic battery. What we call life and what staggers our comprehension, from the forming crystal to the organized brain of man, we can not distinguish from thought. As with gravitation, heat, light and electricity, so science seeks to bind the thought of the brain with unseen bonds, to do service for our fellow. It is this subjective, subconscious mind that is constantly amenable to the suggestion of thought, either of the individual or of some other.

I think we are agreed that the larger part of all diseases will get well with any treatment that does not do positive harm, and this class includes most acute and some chronic diseases. Some are diseases of invasion and some are autopathic. Of the minority remaining, and excluding the failures of those who have died or are confirmed invalids, there are those that, in addition to favorable suggestions, receive some helpful treatment. These are common with us all, as with the various one-idea and topical plans of healing. Then there are those which are imaginary, real only to the patient himself. It is sometimes difficult to diagnose an imaginary disease from a functional one. They are often mento-physical—that is, while largely of mental origin, they have a foundation in some obscure cause, such as defective metabolism. They go from one doctor to another and believe in none. They always imagine something of a serious nature, as organic disease of vital organs, and are never known to belittle a

symptom. These, together with the purely imaginary ones, are those that are the subjects of the wonderful cures, bruited far and near. It is easy for the skillful pretender to magnify a slight ailment into one of a very dangerous character, such as an intercostal neuralgia, because of its location, into grave disease of the heart, whose cure will last until the pocket-book is exhausted. Such a patient may at last die, the victim of his own imagination, if not from the infinite harm done by those people whose chief delight it is to rehearse the mournful tale of their own afflictions.

Now as to the manifest value of suggestive treatment as a healing agent, it is sufficient to say that, while it may not be a direct antidote for toxemias or a substitute for the leucocytes, it may so influence the wonderful chemistry of nutrition as to aid them in their work by promoting the virility and appetite of these normal scavengers of the blood. Suggestion is not equal to the emergency of an appendicitis; it can not remove a needle from the flesh, but I have seen it completely banish the pain of it when once the patient believed that it had been removed. A good suggestion always goes with an efficient prescription; sometimes one, sometimes the other, is most available, we are built that way. My partner gives a medicine that proves to be worthless; afterward I give the same medicine to the same patient from the same bottle, and it has a most happy effect. Why? Because of my personal influence. And so I say that the problem of suggestion is, for the most part, one of personality. The natural way to the confidence of the patient is the honest one—the new and spectacular to those who may. There is nothing occult or mysterious about suggestion or hypnotism. It is conditioned upon a personal force in the one and a receptive mind in the other. Personality is the chief factor, which makes for success in all avocations where conviction plays a part. It is the personal equation to be solved in the mental control of patients in order to help vital action and cure disease. I believe more patients are saved by a tactful and opportune suggestion than by all other means. The best life insurance agent I have ever known told me that he had attended Dr. Parkyns' School for Suggestive Therapies, as he said, to perfect himself in the art of persuasion.

All the qualities of a forceful personality contribute to the end in view. Self-confidence is one of them, but self-confidence is not egotism. To be self-confident is to believe in one's own ability; to be egotistic is to boast one's own ability. The one is a virtue and attracts, the other repels and fosters detestation.

It was Lowell, who, with the flavor of Irish wit said: "Let us be ever cheerful, remembering that the misfortunes hardest to bear are those that never come." A cheerful way is a valuable asset in any business. It is not taxable or subject to sheriff's sale; it carries with it a halo of sincerity and conviction. The physician may by repetition and insistence impress his thought upon his patient, for of all subjects the sick man is in the most receptive mood. The force with which he does this is a variable quantity with us all. We differ in gift and quality; one with no exceptional ability or attainment easily leaves the impression that he is a very prodigy of human wisdom; while another, well fortified in the literature

of medicine, offends more than he pleases. But what Nature seems to have denied us we can compensate by study and endeavor. When we reflect upon how much the dynamic power of a single thought can accomplish, this ought not to be forgotten in a preliminary and professional training of the student of medicine. It is a matter of practical therapeutics to teach him the cultivation of his own personality, the power to please and convince.

It is often the physician may lay aside the dignity which seems to envelop him and study the attitude of the patient and his point of view. He may study also the art of the Dr. McClures in the country by-ways. He has use for the simple, sterling virtues that have won the hearts of men and women ever since civilization repressed our savage instincts. Sincerity, kindness and sympathy are great things in the equipment of all. But, above all, confidence in himself and his therapeutics is a herald of success. The follower of Mrs. Eddy is no faint heart or hypocrite. He believes in himself and his method, and this belief in a vague and empty doctrine has blazed the way for its triumph.

Day by day the physician is face to face with appreciable forces that spring up in the heart and brain. No man stands in reach of higher or nobler duty in the whole range of human effort. As in other situations of life, he should be a symmetrically developed man "who can stand four-square to all the winds that blow." For with a profound sympathy for human suffering he reaches within the veiled chambers of the human heart, where hope and fear are born, to touch those tremulous chords that vibrate in a thousand tongues and voices as a master sweeps the strings of a harp.

Since the discoveries of Koch and Pasteur we look with high hope on the future of scientific medicine. We wait the time when our aided vision can discern the little pioneers of disease, raiding in bone and tissue, or disporting themselves in the stream of the blood; or when the triumph of the serum therapy shall banish invasive disease forever. May we not learn more of the spiritual nature of man, its condition, its habits, so that the physician shall be an apostle of "Good Cheer" in the physical millennium long foretold: "There shall be no more thence an infant of days, nor an old man that hath not filled his days; for the child shall die an hundred years old; but the sinner, being an hundred years old, shall be accursed."



# ILLINOIS MEDICAL JOURNAL

THE OFFICIAL ORGAN OF THE ILLINOIS STATE MEDICAL SOCIETY.

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OCTOBER, 1907.

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## ACTIVITY IN COMBATING CONSUMPTION.

From all sides come encouraging reports concerning the activity of various organizations and societies in the laudable effort of stamping out tuberculosis. Trade organizations and health benefit societies are recognizing that great sums of money may be saved them by the systematic effort to remedy the prevalence of consumption.

The association of postal clerks in Chicago, recognizing this fact, is about to take means to establish a consumptive colony in the neighborhood of Chicago to which those members suffering with an incipient form of the disease may be sent. Other organizations have combined to establish a system for the treatment of the disease in New Mexico. The intelligent portion of the laity are being rapidly taught the importance of early recognition of the disease and little by little professional men are waking up to the necessity of investigating every catarrhal condition of the nose and throat to determine the possible existence of tuberculosis. The year 1927 has been set for the virtual extermination of the disease in Germany and, while America has been somewhat remiss in taking up this work, it is not too much to hope that the superior intelligence of our people and the thoroughness of their social organizations will be so effective that we may look for a more rapid extermination here than in Germany or any other foreign country.

## BUSINESS BUREAU FOR CHICAGO MEDICAL SOCIETY.

[Communicated.]

The growing tendency on the part of medical societies to extend benefits to their members has made especial strides in Chicago. Members of such an organization as the Chicago Medical Society who do not attend council meetings can hardly appreciate the multiplicity of affairs that come before that body for decision and the vast amount of work done by the committees.

The importance of society matters is making it more and more necessary that a central office be established where committees can have the aid of typewriters or keep their papers as well as for the proper filing of the society's archives so that they may be accessible to succeeding committees to aid them in current affairs.

The \$5.00 yearly dues of each member has to be very carefully apportioned to cover the present expenses. Each member now has a copy of the ILLINOIS MEDICAL JOURNAL free. A firm of attorneys are hired, at a yearly retainer, to defend malpractice suits. Stenographers naturally are necessary for both the medicolegal committee, treasurer and secretary's voluminous correspondence. The treasurer has even turned back his honorarium into the treasury. With all this there is a growing need for the central offices which will entail further expense.

THE JOURNAL and the defense fund, which latter has now been extended to the state, are proofs of the success of the society and its ventures. The idea of the society defending its members against malpractice or, better, that species of blackmail which has so often harried our ranks, would have been considered a wildeat scheme ten years ago. Not only has this been eminently successful in Chicago, but has been extended to the state.

With the coming winter we have the regulation of dispensaries and other like problems which will cost money.

Other committees, like the external relations and legislation committees, have done much work, paying even their railroad expenses, to say nothing of the time expended.

The time is ripening when the Chicago Medical Society should throw more activity into serving members in good standing and further aiding them in getting their rights.

It would seem that the time has come when the question of the formation of a bureau would be acceptable both to the society as an organization as well as to its individual members.

Much money is yearly distributed among nearly 200 collectors that might go with benefit into the society coffers.

The Bureau Committee has reported, on good authority, that the gross commission on collections for seventy-five doctors in good standing amounts to \$5,000.00 gross, or about \$66.00 yearly for each doctor, and estimates that, if the whole society patronized the bureau if established, it would yield an income of \$26.666 from its two thousand members if the commissions on each member's collections only amounted to \$13.33 annually.

With this income the society could do more effective work and extend its usefulness and, what is also of vital importance, gradually reduce the commission charges so that collections could be performed for but little over the cost price, as well as gaining valuable information that would lessen the losses to members and reduce the number of malpractice suits.

### DRUGGISTS WANT LEGISLATION.

The National Association of Retail Druggists, at its ninth annual convention recently held in Chicago, has tendered resolutions in favor of legislation to prohibit physicians from dispensing drugs and medicines on their own prescriptions. The subject, which has been of long standing between physicians and druggists, was brought to the attention of the delegates by President Charles F. Mann, of Detroit, in his annual report. With a great deal of what President Mann has said the profession can agree, and it is not too much to hope that mutual concessions on the part of both professions will bring about a great amelioration of past abuses.

President Mann's language is as follows:

"The National Association of Retail Druggists must always stand, as it has always stood, squarely against counter prescribing. It is a practice which is illegal, dangerous and dishonest.

"Much can be done through joint meetings of local societies. The evil practice of counter prescribing by druggists and dispensing by physicians can be minimized and ultimately destroyed by persistent effort on our part."

Resolutions also were introduced urging the delegates to place the association stamp of disapproval on all fake patent medicines. In the matter of preparations bearing a patent name, or trademark, the druggists will urge physicians to prescribe standard U. S. P. preparations whenever possible.

### SUNDOWN DOCTORS AND SUNDOWN MEDICAL COLLEGES.

The sundown doctors are a product of the government departments of Washington, who ply their trade after 4:30 p. m. From 9 in the morning until that hour they are holding their noses to the grindstone of government desks. As a rule, these gentlemen do not get away from the government service, never becoming very expert clerks or successful physicians.

A little worse than the sundown doctor is the sundown medical college, and it has been so thoroughly shown up by the Committee on Medical Education of the A. M. A. that we are quite surprised to learn that another such school, yept Hippocratean, has been started in St. Louis under the leadership of Dr. Emory Lanphear, some time of Kansas City. We had hoped that the night medical school was doomed to extinction, and we still cherish the hope that the profession will refuse to support this new school in St. Louis and that it will "die a bornin'."

## YELLOW MEDICAL JOURNALS FROM FRANCE.

Just as the organized profession are beginning to make some headway toward cleaning up medical journal advertisements in America, the United States begins to be flooded with yellow journals from other countries, notably France. Probably the worst offender of this sort is a journal called *Le Monde Medical*, published at 45-47 Rue du Docteur-Blanche, Paris. The English edition, published monthly, is a sort of combination of the semimonthly French edition, and the whole seems to be an advertising scheme for the drug house of Astier, Paris. The United States agents are Fougera & Co., of 90 and 92 Beekman street, New York. Fougera has long been engaged in the distribution of proprietary medicines, and it is not surprising that this company is a party to the distribution of this journal, which seems to us to be the rankest sort of a proprietary publication. No doubt our readers will consign these alleged scientific journals to the waste basket, where they belong.

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## ASSOCIATION OF INDEPENDENT DOCTORS.

An association bearing this title was organized at the Sherman House in Chicago early in September, with Charles McCormick as president and C. W. Crosby as secretary. It is announced that directors will be selected at the next meeting of the organization.

The objects of the association are announced to be to secure insurance against malicious prosecution, to secure speedy changes in the laws of the several states so as to permit a licentiate to practice medicine in any state of the union, to have members of health boards appointed from all walks of life, and to publish a medical magazine.

The new organization is opposed to the American-Medical Association, which it calls "a trust" and attacks in its constitution as "worthless, incompetent and misleading."

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## IRREGULARITIES OF THE IRREGULARS.

The daily press of the state has, during the past thirty days, been unusually full of accounts of the woes of the irregular practitioners. Among these we note that one Franklyn J. Morgan, a Christian Science practitioner of Chicago, has been sued by his wife, Mrs. Alice R. Morgan, for separation. Mrs. Morgan declares that he has an income of some \$3,000 from his practice.

C. N. Maxcy, an osteopath, formerly of Springfield, announces that he has gone west for his health and refuses to be responsible for the debts of his wife.

Mrs. Anna Downs, of Bloomington and Springfield, declared to the court that her husband, Luther Downs, to whom she was married in 1901 and who went to the osteopathic school at Kirkwood, Mo., on her money, has gone off with another women, and she was granted a decree of divorce on the ground of desertion.



UNITED STATES PHARMACOPEIA AND NATIONAL  
FORMULARY.

The press of the American Medical Association has just issued a physicians' manual of the United States Pharmacopeia and National Formulary, which we think will be welcome by the great body of physicians. It includes the names and brief descriptions of all the articles that appear in both of these books. At the end is a therapeutic index and a list of common names of articles which we believe will be advantageous to busy physicians. Since the line which separates Pharmacopeian articles from those of the National Formulary is in many cases an arbitrary one, this handbook which covers the two series will be of decided value.

With this volume on his desk there will be little excuse for the physician to be deceived by the proprietary medicine man, and it should be found in every practitioner's office.

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**Correspondence**

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## DEFENSE OF THE NIGHT SCHOOL.

In the report on medical education at Atlantic City the statement is made that all night schools were condemned, and that only about 50 per cent. of all colleges were in condition to teach.

Did they stop to consider that less than 20 per cent. of all the doctors attending the meeting had as good an equipment where he studied as is possessed by the poorest night school?

When one condemns the night school he displays his ignorance of the workings of these schools.

Do they know that the night school was the first to introduce the four-year graded course, and the strongest objection to them came from schools which did not want to extend the time of their classes?

A careful observation of night-school graduates for the past fourteen years warrants the belief that they will hold their own with any in the profession for skill, honesty or business success, and we protest against any effort of would-be leaders to blame the night school for their failures.

CHARLES D. CAMP, M.D.,

Originator of the Night School and the Four-Year Graded Class.

## COUNTY AND DISTRICT SOCIETIES

### COOK COUNTY.

#### CHICAGO LARYNGOLOGICAL AND OTOLOGICAL SOCIETY.

A regular meeting was held Feb. 19, 1907, with the President, Dr. J. Holinger, in the Chair.

"Case of Closed Ethmoid Sinusitis," by Dr. H. Kahn and Dr. Mortimer Frank.

"Necrosis of Lacrimal Duct," by Dr. Wm. L. Ballenger.

"Asthma Due to Sinuitis." "Dehiscence of Nasal Bones and Os Frontalis," by Dr. J. Holinger.

"Operation for Chronic Suppurative Otitis Media without Removal of Membrana Tympani for Ossicles," by Dr. Norval H. Pierce.

"Acute Otitis Media" and a "Case of Complete Facial Paralysis Following Cholesteatoma Existing for Years, with Partial Re-establishment of Function," by Dr. Norval H. Pierce.

"Case of Abscess Behind the Ear," by Dr. Norval H. Pierce.

"External Splint for Lateral Deviation of Nose," and exhibition of mastoid cases by Dr. A. H. Andrews.

"Demonstration of Sidney Yankauer's New Method of Operating on Turbinal Hypertrophies," by Dr. H. Stolte.

"Case of Oto-Sclerosis," by Dr. George E. Shambaugh.

"Case of Deformity of Nose from Sequestrum," by Dr. J. C. Beck.

"New Nasal Chisels for Opening Maxillary Sinus, with Brief Reference to Technique," by Dr. A. M. Corwin.

#### A CASE OF CLOSED SINUITIS OF THE ETHMOID LABYRINTH, WITH EXOPHTHALMOS.

HARRY KAHN, M.D., AND MORTIMER FRANK, M.D.

CHICAGO, ILL.

F. G., a school girl of 14 years, who gives the following history: Father died of tuberculosis; the mother and two brothers in good health.

The patient, during the year of 1904, suffered successively from measles, scarlet fever and diphtheria. In 1905 she had chickenpox, and in 1906 had an attack of mumps.

Following the attack of chickenpox the patient noted a protrusion of the left eye, which as time progressed became more and more prominent. There was no headache, no hydorrhea, no parosmia, no pharyngeal or laryngeal irritation; in a word, there was no symptom of the subjective variety that could be referred to the nose or to the accessory sinuses.

The ophthalmoscopic examination presents nothing of importance except the exophthalmos. The globe was pushed outwards, forwards and to the inner side of the orbit. On palpation, could be felt the sharp posterior edge of the lacrimal bone, which was driven forwards. Vision, 6/7 and with a + 0.50 = + 0.75x90 = 6/6. The ophthalmoscopic examination was negative. There was no diplopia, and ocular movements free in all directions. Lids in perfect apposition. Tension normal, and no tenderness or pain on pressure.

*Rhinoscopic Examination.*—The septum is almost straight. The right side of the nose is normal. The left showed a large tumor-like mass, polypoid in character, in the place of the normal anterior end of the middle turbinate body; it filled the whole of the olfactory space, lying flatly against the septum on the one side and impinging on the external wall on the other.

After the application of adrenalin and cocain, the mass did not shrink, was hard and immovable when tested with the probe; hence a bullous anterior end

of the middle turbinate was diagnosticated. No pus was visible in the nose at any time, nor did the patient give any history of a purulent discharge; in fact, stoutly denied ever having had any such discharge.

The anterior end of the middle turbinate was resected with the scissors and the snare; there immediately escaped a large volume of white, odorless pus, which has continued to discharge to a greater or lesser degree ever since the operation on the 17th of January, 1907. The ethmoid labyrinth was cleaned as well as possible at the time. An opening was made large enough to insure good drainage. The progress of the case has been very satisfactory. The nose is gradually assuming its normal contour, and the eye is returning to its normal position.

This is a case of true closed or, as the Germans name them, "looked" ethmoid sinusitis, with a perforation of the lamina papyracea. That this is the diagnosis is shown by the results of the operation, namely, the finding of pus in spite of the absence of symptoms pointing to its existence, and the return of the eye to its normal position, and argues for a perforation of the lamina papyracea.

The case is presented, not because we believe this condition is an extremely rare one, but we do think that this is an uncommon case, and, further, the case is now of two years' duration. During that time it has been seen by several of our colleagues, by whom various diagnoses were offered, such as osteoma of the orbit, tumor of the orbit, etc. One practitioner sent the patient to a hospital for enucleation of the eye, but at the last moment the patient rebelled and left the hospital.

That the enucleation of an eye is not so uncommon we need but to refer to the paper of Fish, in the *Medical Record*, vol. lxx, page 689, in which he reports five cases of enucleation of the eye in patients suffering from a closed ethmoid sinusitis. From this case and those reported by the last-named author, warning should be taken by the ophthalmologist not to enucleate an eye of this type without first looking into the nasal conditions.

#### DR. BALLENGER'S CASES.

Girl, 11 years old, had scarlet fever seven years ago, and following this suffered from sinusitis. One year ago there appeared a bulging of the side of her nose, and again last winter. I operated two months ago, and found a large area of necrosis in the region of the lacrimal duct and including the anterior and posterior ethmoidal cells. It was removed and the anterior and posterior ethmoidal cells were exenterated, and the middle turbinal removed. Granulation tissue was removed from the sphenoidal sinus. The other side was operated on in the same manner, but intranasally. The skiagraph showed great density through the ethmoidal region on both sides and absence of both frontal sinuses probably because of her growth. There is still some discharge from the right side.

#### DR. J. HOLINGER'S CASES.

CASE 1. Bronchial Asthma Cured by Radical Killian Operation on the Frontal Sinus.—Mrs. M., aged 20, suffered from asthma since her fifth year. At her first examination she showed the typical picture of bronchial asthma, which I do not need to describe here. There was a considerable amount of pus in both nostrils, more, though, in the left middle duct. A systematic rinsing by means of Siebenmann's canula of one cavity after another revealed ill-smelling pus in a cavity which was reached by inserting the canula laterally and about one centimeter behind the anterior end of the middle turbinal. The asthma improved and did not bother her throughout the fall and the first half of winter.

Middle of January it appeared again, and we decided to operate radically. On entering above the medial end of the left eyebrow, a large sinus was uncovered, reaching from beyond the right incisura supraorbitalis to beyond the left one, and opened into the right nostril. No pus but thickened lining was found. On removing the floor of this sinus, foul-smelling crumbs of pus were noticed. They were removed, together with the polypoid degenerated lining from a flat deep cavity in the roof of the orbit. Both cavities were drained into the left nostril.

The patient made an uneventful recovery and to-day, two weeks after the operation, you can barely notice the scar. No trace of asthma has shown since, and she feels stronger.

**CASE 2. Tubercular Ulcer in Connection with a Congenital Malformation.**—An ulcer the size of a penny with undermined margins is located in the skin above the inner corner of the left eye. The root of the nose is swollen and upon pressure on the swelling and on the ulcer a drop of pus appears at a birthmark which is located near the lower end of the nasal bones in the middle line. It looks like an enlarged hair follicle. At the operation the skin was found undermined in all directions from this birthmark. The ulcer was connected with the fistula. The fistula led to a cleft of about one-half a centimeter in width between the nasal process of the frontal bone and the nasal bones. Nowhere could raw bone be felt nor could any communication of the cleft with the surrounding sinuses or the nose be discovered. The wound was curetted and closed. It healed nearly throughout by primary union.

The question of interest is that of etiology. A tubercular ulcer in connection with a congenital fistula, even the fact that the ulcer developed more than an inch from the opening of the fistula, has been repeatedly described. But the cleft in the bone was certainly not of a tuberculous nature, because there was no raw bone in the cleft, no granulations, the lining of the cleft was periosteum. The cleft was not filled with connective tissue; it could not be a scar of a former injury. The only explanation is that of a congenital malformation. As such it can not be compared with cleft palate which is due to a defect in development along the lines of embryonal clefts, for the simple reason that there are no embryonal clefts in that region. The nose develops as a median protrusion of the forehead. The patient has her own explanation of the birthmark which was given to her by her mother. She says that her mother saw a man with a broken nose during the early time she was pregnant with her.

The question of the effect of maternal impressions upon the child is a difficult one. The present case seems to confirm the possibility of such influences.

#### EXHIBITION OF MASTOID CASES.

NORVAL H. PIERCE, M.D.

**CASE 1.**—Man, aged 20, had measles at 7, following which both ears discharged, resulting in chronic suppuration. The right ear has been dry for a number of years, and to-day the patient has a healed perforation of Shrapnell's membrane on that side. The left ear continued to discharge profusely at times, and there has been pain over the mastoid region. The discharge was purulent in character. He could not hear a whisper, and a conversational voice only at two feet in the left ear. The right ear is also affected. On December 26 last the mastoid antrum was opened and the external auditory canal taken away down to the annulus. The aditus antrum and surrounding cells were found filled with a granular mass of tissue intermixed with pus. When this was cleaned out up to the healthy bone, a cavity the size of a filbert remained. The tympanic membrane and the contents of the cavum were not disturbed. A very careful examination disclosed no caries of the ossicles. A reverse Stacke flap was made from the external auditory canal and turned into the cavity; that is to say, as the Stacke flap covers the floor of the cavity left after a radical operation, this that I made covered the roof and was packed in position. The posterior incision was closed; drainage was carried into the external auditory canal, and a wet 50 per cent. alcohol dressing put on. The posterior incision healed, as you see, by primary union. The cavum is now dry, likewise the antrum. There still remains a perforation in Shrapnell's membrane. The man can hear eight feet for voice, and two for a whisper in the left ear.

This operation is especially indicated in cases where there is only perforation of Shrapnell's membrane and the pars tensa is intact, or where there is only a small peripheral perforation in the pars tensa. Where there is extensive destruction of the tympanic membrane, and the ossicles are necrotic or bound down by



adhesions, there is little gained in stopping short of a complete radical operation. In certain cases it will be found impossible to perform this operation, especially in those in which the chronic discharge is kept up, not by a large cavity in the mastoid process, but by a fistulous tract, or where the antrum and aditus are reduced in size by plastic inflammation, or even obliterated, we must, after our attempts at reaching the antrum have proven unsuccessful, resort to the Stacke procedure of following up from the middle ear. There are two methods by which it may be performed. First, in the manner illustrated by the present case; second, by taking away the external wall of the epitympanic space also, yet leaving a rim of bone to hold the tympanic membrane. Attention has been drawn to this operation by a recent article written by Heath, but it is not a new procedure by any means. The results, so far as hearing is concerned, are more successful than those obtained by the complete radical operation, but it is only suited to selected cases.

CASE 2.—Adult woman, admitted to the Polielinie with acute otitis media and mastoid involvement, with swelling at the tip, and a temperature of 102°.

Jan. 13, 1906, the mastoid process was taken away and the anterior zygomatic cells thoroughly cleaned out. Two days afterwards a large abscess appeared in the neck, accompanied by a rise of temperature to 103°. It rapidly invaded the deep tissues of the neck, and was opened just above an inch of the sternum at the point marked by the present scar. Two weeks later the swelling developed on the side of the face. A drainage tube was inserted below the jaw at the point marked by the second scar. The patient was markedly septic; slight facial paralysis gradually came on, together with torticollis, which drew the head well to one side. You see now a woman in perfect health, with full movements of the facial muscles, and no torticollis. Massage of the sterno-cleido-mastoid muscles on the affected side will hasten the disappearance of these conditions which result from suppurative processes in the muscles themselves.

CASE 3.—This little girl was operated on when 5½ years old for an enormous cholesteatoma in the left ear. Complete facial paralysis followed immediately after the operation and existed for four years. At the time of the operation I was convinced that the sequester which had fallen in the deeper portions included the facial nerve. Three years ago the facial muscles began to show reaction and, as you see now, the patient can use the muscles quite well, closing the eye perfectly. This case illustrates one of two things, either that the nerve is capable of regeneration after a very long time, or that nervous impulses may be carried to the facial nerves through channels within the trunk of the facial, most probably through the hypoglossal.

In Seppy's Anatomy there is an illustration portraying a branch which goes from the peripheral portion of the facial to the hypoglossal. That this anastomotic action may take place is proven by a case reported by Bezold in which the sequester taken from the ear disclosed the facial canal.

CASE 4.—A girl, 16 years of age, was sent to me from Las Vegas, New Mexico. One year ago she had some work done on her tonsils. Three months afterwards she complained of pain in the right ear and over the mastoid region. On inspection, the membrane was found congested. Paracentesis was performed without result. Her condition continued for about a month, when the patient was placed in charge of another doctor. During the first part of July the temperature arose to 100°, with infiltration and tenderness over the mastoid. Her physician did a simple mastoid operation, finding softened bone with some pus. The wound healed kindly, and the patient did well until September, when the mastoid again became infiltrated and tender. Another opening was made, and an immense amount of seminecrotic bone, with a small amount of pus, was removed. The temperature then was 100.5°. Patient did well for two or three days, when she complained of pain and became unconscious at each dressing, but occasionally between times remaining for a few minutes, once for eleven hours, conscious. The return of consciousness was marked by a jerk. After the last operation, while the wound seemed to fill in, it became gangrenous and sloughed. In October she was again

operated on, and only granulation tissue was found. The wound healed kindly; when practically closed, without any warning, the wound sloughed out and became gangrenous. It resisted all treatment; the bone became exposed, and unconscious states have continued up to the present time. There is now a punched-out hole behind the ear. The space is white, with a sprinkling of blackish spots. The white base is made up of a layer of carious bone. If this is scratched, bleeding of the vessels beneath takes place. About the edges of the wound is a slate-colored slough, with a narrow rim of periosteum, the neighboring soft tissues being slightly involved. The skin is not infiltrated, but is macerated from the discharge issuing from the wound. There is no active suppuration, and there is marked anesthesia of the scar and surrounding tissue. I have examined the patient carefully for the stigmata of hysteria and find the classical symptoms all present. She has complained at times of blindness in the right eye, coincident with the exacerbations occurring in the mastoid wound. Syphilis, tuberculosis, carcinoma, may, I believe, be excluded in this case. As the wound began to change in character and showed signs of rapid healing, I have not taken away any of the soft tissues for microscopic examination. I believe that we have here a process which is connected in some way with the hysterical state. Whether it has been produced by the patient's efforts to arouse sympathy by the introduction of substances beneath the dressing or not, I am unable to say, but the fact remains that under suggestion the wound is rapidly healing.

#### EXHIBITION OF CASES OF RADICAL MASTOID OPERATION WITHOUT REMOVING THE DRUM MEMBRANE AND OSSICLES.

ALBERT H. ANDREWS, M.D.

CHICAGO.

CASE 1.—Miss K., aged 20, a telephone operator, gave a history of chronic suppuration of the left ear since childhood. There were occasional acute exacerbations when she would complain of pain behind the ear and over the side of the head. Pressure on the mastoid elicited some pain, and the transilluminator showed no light passing through the mastoid.

The hearing in the affected ear was good, the whisper being heard about ten feet. Considering this patient's occupation, it was especially desirable that good hearing be preserved. My results after the complete radical operation had only averaged hearing for the whisper about three feet. So I determined in this case to leave the membrane and ossicles, in the hope of securing better results.

Oct. 3, 1904, at the Postgraduate Hospital, the mastoid was thoroughly cleaned out, a free opening made in the antrum and the posterior-superior wall of the canal removed down to the annulus and outer wall of the attic. A Koerner flap was made and held in position by one of the stitches closing the postauricular incision. The wound was packed with iodoform gauze and routine postoperative dressings employed. The method of blowing out the middle ear through the antrum, as later employed by Heath, was not used. The discharge ceased in about six weeks, and the ear has given no trouble since, except for occasional accumulation of cerumen. The hearing is now whisper for about twelve feet.

CASE 2.—P. R., aged 30, electrician, has had chronic suppuration of left ear one year, following ordinary acute otitis media. There is a small perforation in the posterior-superior quadrant, from which a considerable amount of fetid pus escapes. The whisper is heard eight or ten feet. The patient was under treatment during several months, the latter part of 1896. He complained of an uneasy feeling in the side of the head, and had frequent elevations of temperature. An operation was performed Dec. 12, 1906, at the Eye, Ear, Nose and Throat Hospital. Pus and granulation tissue was found in the mastoid. The antrum was opened freely and carefully cleared of granulation tissue. In this case, as in the former, the posterior-superior wall was removed down to the membrane. The same flap was made, and the usual dressing employed. The ear was dry in four weeks and has remained so since. Hearing for the whisper is now practically normal.

Without going into these cases in detail, I will say that I see two contraindications to this method of operating:

First, when disease of the ossicles can be demonstrated.

Second, when a cholesteatoma is present, or when the middle ear, attic or antrum is lined with epidermis.

In cases with hearing less than the whisper for three feet, a careful investigation of the cause of deafness should be made before deciding whether to leave or to remove the ossicles and membrane.

#### DEMONSTRATION OF SIDNEY YANKAUER'S NEW METHOD OF OPERATING ON TURBINAL HYPERTROPHIES.

##### ABSTRACT.

Dr. Herman Stolte, of Milwaukee, described and demonstrated, following an especial suggestion of Dr. Sidney Yankauer in New York, the new method of the latter of resection of the hypertrophic parts of the lower and middle turbinated bodies to be followed by a complete surgical intranasal suture of the produced wound edges—from the posterior extremities up to the anterior border—in order to secure primary union of the wound. The new method was demonstrated by the inventor, Dr. Yankauer, already on the 22nd of January before the Academy of Medicine in New York, but was not to be published and communicated to the rhinologists in the *Laryngoscope* until the middle of March. The ingenuity of the method, representing a real progress in surgery, on the one hand, and the difficulty of the technic on the other, fully appreciated by Dr. Stolte when the method was privately demonstrated to him by Dr. Yankauer on the 17th of January, when Dr. Stolte was by chance in New York, evoked in Dr. Stolte the wish to communicate this new method as soon as possible to the Chicago rhinologists by a personal demonstration, especially of the intranasal suture and the use of the instruments in order to make the later publication of Dr. Yankauer's article in the *Laryngoscope* more comprehensible and thus to awake the desire to try the operation as soon as possible, so that the newly gained experience of others would help to improve the technic by individual suggestions. Dr. Stolte had tried the operation in two cases and came to the following conclusions:

"The operation is possible only in cases in which the swell body of the lower turbinated body forms the chief part of the obstruction, to be judged of after the use of adrenalin application. In cases in which the hypertrophic and enlarged bony frame of the turbinate is resting against septum and floor the operation is scarcely possible. Only a full response to adrenalin, giving a consequent free operating field, enables us to operate. A constant and free oozing makes the execution of the intranasal suture impossible.

The instruments so far known for the execution of the first step of the operation and especially for the subperiosteal or submucous resection of parts of the bone are too clumsy and need technical improvement in order to shorten the operation. In the meantime Dr. Yankauer devised a very suitable, slender scissor which is so delicately built that it does not obstruct the view, but, on the other hand, possesses the very strong joint of Myles' scissors, enabling us quite easily to cut off the tissues and bone. In order to detach the swell body from the bone, also Freer's straight and curved septal elevators proved to be very useful.

The operation carried out in suitable cases represents a great progress in nasal surgery, as resulting in primary union within three or five days, it does away with all the numerous annoyances and drawbacks (secondary hemorrhage, infection, suppuration, granulating wound surface, very prolonged healing process resulting in the formation of cicatricial tissue in place of normal mucous membrane) of the older methods, which appear in reality crude and primitive in comparison with the precise, exact and scientific new method, being strictly in accordance with the best principles of modern surgical technic.



## CASE OF OTOSCLEROSIS.

GEORGE E. SHAMBAUGH, M.D.  
CHICAGO.

The case I have to present is one suffering from an ear lesion which to-day occupies the central point of interest in clinical otology.

He presents, in a large measure, many of the characteristic clinical symptoms of this condition. The young man is 15 years of age and has had no previous ear trouble. There is, however, distinct history of hereditary ear trouble. His father, who is also quite hard of hearing, tells me that in past generations there were a number of instances of intermarriages of first and second cousins. He has a brother who has for many years been quite deaf. The father dates his ear trouble from the time when he was 10 years old, when he had an attack of scarlet fever. There has been a gradual loss of hearing from that date until the present. On examining his ears, I find the drum membranes show no scarring or any evidence of a past suppurative process and, aside from a considerable degree of thickening, appear quite normal.

In making the functional examination it was necessary to shout in order that he might hear at all in either ear. He was unable to hear any of the tuning forks by air conduction. Even the piercing tones from the c4 fork were entirely lost. No hearing for any part of the range of the Edelman Galton whistle was present. On the other hand, the bone conduction was still moderately prolonged. There was no distinct lateralization in the Weber test, and the Rinne was, of course, absolutely negative.

The patient I present began to lose his hearing only about three or four years ago. He dates the onset of the trouble from a severe cold in the head, at which time he suffered for a short time from pain in both ears. The onset of the deafness, however, was very gradual, and there is a question whether his present ear trouble bears any relation of cause and effect to the severe cold in the head. The patient's hearing has grown slowly but steadily worse since it began. At no time has there been any distinct tinnitus aurium. The only clearly defined sensation referable to the ears has been a subjective sensation of fullness, which is much more marked during unsettled weather.

On examining the patient, the tubes are found to be normally open, both ears are readily inflated even by the Valsalva method. The drum membranes are normal in all respects, except for a decided reddish glow which is transmitted through the drum membrane, especially on the right side, from a congestion of the mucous membrane over the promontory. The same condition has been noted on the left side, but is not so marked at present.

The functional tests give the characteristic reactions for a profound obstruction in the sound-conducting mechanism, an obstruction which can only be accounted for by a more or less fixation of the key to the sound-conducting apparatus, namely, the foot plate of the stapes. There is complete loss for all tones at the lower end of the scale; even C fork 64 d. v. is not heard in either ear. On the other hand, the c4 tuning fork is heard quite normally in both ears. The lateralization in the Weber test is toward the more affected ear of the two. The Rinne is decidedly negative. The Schwabach test shows a pronounced prolongation of the bone conduction.

The negative Rinne, the lateralization to the more affected ear, and the prolongation of the bone conduction, together with a loss of the lower part of the scale, are, of course, characteristic of all obstructions in the conducting mechanism. In this case, however, the Rinne is so markedly negative, the loss of the lower part of the scale is so extensive, and the prolongation of bone conduction is so pronounced that these symptoms could arise only from a decided fixation of the foot plate of the stapes.

A localized catarrhal process in the middle ear about the fenestra vestibuli would not account for symptoms as marked as they appear in this case.

There is, in addition to these reactions, a loss of the highest tones of the



Galton whistle. He does not hear in either ear anything of the Edelmänn-Galton whistle above the mark 7.

The diagnosis is clearly one of otosclerosis. The loss of the highest tones is, of course, a secondary symptom due to the involvement of that part of the organ of Corti just internal to the promontory.

In his father's case, the diagnosis of an otosclerotic process in an advanced stage is equally clear. The points of special interest here are: In the first place, the hereditary causative factor with the history of intermarriages, which is often recognized in otosclerosis; in the second place, the characteristic reddish glow of the membrana tympani transmitted from the promontory; in the third place, the loss of the upper end of the scale, which is a strong confirmatory evidence that the perception of the highest tones takes place in the lower end of the cochlea—that is, the part which forms the promontory.

#### DR. BECK'S CASE.

Patient has a pronounced deformity of the nose, which is said to have followed a blow. The internal examination of the nose is negative. The patient was under antispecific treatment for five months, without result. The skiagraph shows below the nasal bones four distinct nodules. The growth has developed rapidly in the past two weeks. A tentative diagnosis of sequestrum was made.

#### NEW ANTRAL CHISELS,

WITH BRIEF REFERENCE TO THE TECHNIC IN OPENING THE MAXILLARY SINUS.

ARTHUR M. CORWIN, M.D.

CHICAGO.

We have come pretty well to understand that in case of long-standing chronic suppuration of the maxillary sinus with extensive necrosis, granulation, polypi, cysts or new growths, the best procedure is a radical one, permitting free inspection, palpation and use of instruments to eradicate the disease, preferably the Caldwell-Luc operation, as we know it, or better still, perhaps, its more recent refinement as devised by Denker and described so well by Dr. Stolte at our February meeting last year. It is equally true, I think, that, while in some 15 or 20 per cent. of cases such radical interference is needful, in the vast majority of chronic suppurating maxillary antra these measures are unnecessary and, therefore, to advise them is seemingly poor judgment and to do them bad practice.

In rare cases of highly excitable and nervous patients at least partial or transient general anesthesia, whether demanded by the patient or not, is humane. But if this cavity can be opened and treated efficiently through the naris under local anesthesia with little, if any, pain or shock or hemorrhage and no terrifying sense of a severe operation, it seems inexcusable to subject the patient to the greater danger and the after-discomfort, etc., of the radical procedure.

Is the idea of the nasal opening of this cavity an old one? It is perhaps all the more remarkable that only since 1900 has the naso-antral route for curettement, packing, drainage and ventilation found its definite place and come to be recognized as the route of election for the relief of chronic suppuration. Boemmighaus, as early as 1892, had opened through the facial wall, and Janssen in 1894 followed a similar plan. Hajek in 1899 and many others contributed confirmative articles and refinements of technic. Caldwell had, in 1893, published the modest report of his own operation in the *New York Medical Journal*, November 4, which was to remain almost unknown until Luc's work and reports in 1896, '97 and '98. Spicer, before the British Medical Association in 1894, had advocated entrance by the facial route and just missed the glory of Caldwell and Luc in making a small counter opening through the outer nasal wall by trocar, without closing the facial wound.

To-day the dictum is fairly fixed in our operative code, that, as the antrum is normally in communication with the nasal cavity, permanent drainage where necessary should be made by that avenue and not into the more infective mouth. So that the ancient Meibom-Cooper operation through a tooth socket so long the

chief property of dentists, and I had almost said a reproach to our profession, has finally received its tag and number and already gathers dust among rhinologic relics of the top shelf. And yet dentists still do it. The sacrifice of sound teeth for antral drainage as practiced a few years ago is now very bad practice, and alveolar opening is only to be tolerated transiently in the removal of diseased roots and necrosed bone in their vicinity, a counter opening through the nose, or facial wall and nose being made if cure is not effected within a reasonably short time. The same ban has been placed upon the so-called DeSault-Krüster method of prolonged opening for drainage and packing through the canine fossa, or any modification of this, such as the operation of Kretschman and others, with or without counter opening through the nose. The nasal route to the antrum through a large opening, but without resection of the anterior facial wall, was advocated by Rethi some ten years ago following Zuckerkandl's suggestion to open through the middle meatus. So also we have the names of Onodi and Gerber and Hunter and Siebenman and others associated with drainage through the middle meatus. This procedure was no doubt suggested by the normal fragileness of the "nasal fontanelle." But this school of operators would seem to sacrifice good drainage, the chief desideratum, to ease of operating, and the results are correspondingly uncertain and unsatisfactory. Mere puncture by trocar, drills, trephine or trocar chisels as we practice it to-day following the lead of Krause and Friedlander is of diagnostic value for cleansing purposes in acute or mildly chronic cases or where the antrum has been for a short time simply a receptacle for pus overflowing from the frontal or ethmoidal sinuses. But as a cure in chronic suppuration it is on a par with the alveolar route or irrigation through the normal or accessory meatus. Mikulicz was the first, I think, to utilize the inferior meatus way to the antrum for free access.

R. Clauoué of Bordeaux stated the operation in definite terms using trephine and forceps, but confining the window to the inferior meatus. This was in reality but a modification of the procedure of Dr. L. Rethi of Vienna as described by him in 1901. This, so far as I can find, is the first full presentation of the principle of a large permanent opening between nasal cavity and antrum reaching to the floor so as to give free ventilation and perfect drainage without a facial opening. He removed the anterior two-thirds of the inferior turbinate under 20 per cent. cocaine and with gouge punctured the antrum, enlarging the area resected till it embraced the anterior part of both middle and inferior meatus without injury to the nasolacrimal duct. To Rethi, then, are we indebted for this epoch-making operation, which has been done with slightly varying technique and good results by many in the last five years, notably Coakley, 1902; Holbrook Curtis, 1903, with trephine and burr; Escat, 1904; Freer, 1905, with trephine and burr or forceps.

It is my desire to add my testimony to the value of the Rethi operation and to emphasize its Teutonic origin in both principle and essential technique. Incidentally I bring to your notice two antral chisels, which I have found very helpful in performing the operation. I fancy these are unique in form, though the use of the chisel is not a new idea in this field. These were patterned after models made from aluminum wire flattened at the end and bent as indicated in applying them to the nasal passage of a patient upon whom I had previously operated with trephine and forceps. The aim has been to obtain such curves in them as seem to be required in the average case. One is for making vertical cuts, the other for horizontal. The total length of each is  $5\frac{1}{2}$  inches, the blades about one-third of an inch wide, bevelled one way. They are used in either naris with equal facility. The vertical blade has a sharp spike one-sixteenth of an inch long at its center; the horizontal has a similar prong at each end of the cutting blade. These spikes readily penetrate the bone with a tap of the mallet, fixing the position of the blade so that it does not slip as it otherwise would without them, for they necessarily attack the surface in a direction slightly off the right angle. Delicate enough to be applied easily under inspection, the shafts are sufficiently stiff to allow of their being malleable just above the blade so that they

may be bent a little, if need be, to suit the case. However, I have found no cause for changing their curves in the six cases upon which I have used them successfully, and Dr. E. F. Ingals has also employed them with satisfaction in two cases. The shaft is flattened in a plane parallel to the plane of the cutting edge which enables one to control the direction of the blade with precision. Each instrument has a double bend so that the force applied by the mallet to the handle is transmitted to the blade in another plane nearly parallel to it.

The inferior meatus as chosen by Claoué has appealed to me as offering an area sufficiently large in most instances for the establishment of an effective opening. The exception might present in those rather rare cases in which the laterally contracted, high-arched palate, deep thick alveolar process and narrow face, occurring in women oftener than men, suggest the presence of abnormally small antra with high-placed floors approaching the level of the middle turbinate or at least above the level of the nasal floor. This combination, as pointed out by a recent writer, is in contrast to the more common type of broad face, wide low palate, vertically shallow alveolus and low-floored antrum, occurring most often in men. Careful study of each patient with these data in mind is essential, of course.

The following is a brief description of the technic of their employment:

Anesthesia is obtained by 20 per cent. cocain in 1-1000 suprarenalin solution, applied on swabs, with special care to make the application high under the inferior turbinate by small pledgets on slender applicators. Further applications of suprarenalin are made to render the operation in most cases nearly bloodless. Resection of anterior one-half or two-thirds of the inferior turbinate is accomplished by Casselberry or other good scissors, snare and Myles' forceps, leaving a narrow flap of mucous membrane which has been elevated from the upper surface of the turbinate along its base. This flap is to cover the stump of resected turbinate and greatly shorten its healing. I think the majority of us would avoid the removal of the entire inferior turbinate as recommended by Chevalier Jackson, of Pittsburg, as reported in October, 1906, *Laryngoscope*, and his statement that "most cases renew a functionally sufficient inferior turbinal in a few months and after a year no observer on looking into the nose could tell that a radical turbinotomy had been done" is misleading, to say the least, and not good advice to the young rhinologist who may read his words. The outer wall of the inferior meatus exposed by the partial anterior turbinectomy is then compassed by three incisions, one immediately below the stump of the turbinal and two vertical, in front and behind. This mucous membrane enclosed by these is quickly and easily separated by a bent elevator and remains as a flap attached below and lying on the floor of the naris. A square or quadrilateral of the bony wall is next removed with the chisels. The anterior, lower, upper and posterior cuts being made in that order. The edges of this window may be further bitten off with forceps or chiseling, according to the indication. The ridge below should be removed as far as possible, making the floors of the naris and antrum continuous. The cavity is irrigated through a bent aluminum tube with hot normal salt or other solutions suggested. The interior of the sinus is examined with flexible bent probe. Such curettage is done as may be indicated. But especially the mucous membrane of the floor of the antrum up to the wall is removed. After further cleansing the flap of mucous membrane may be trimmed as small as need be and pushed through the window. Covered by a narrow strip of gauze, dusted with bismuth and moistened in vaselin, an ounce of which has been mixed with 20 minims of phenocamphor (made by mixing equal parts of camphor and carbolic acid). The rest of the cavity is then packed with gauze of the same sort. The packing may be left for two or three days, when it is removed with care to avoid displacing the flap. Further irrigation and loose packing is done as necessary. The successful implantation of the flap depends much upon the thorough curettement of the floor of the antrum, just beyond the window. This step is an important part of the operation, as the fixation of the flap prevents closing of the opening by immediate epithelialization of its lower edge. Most of the subsequent



care of the antrum is intrusted to the patient, who quickly learns to insert an aluminum tube slightly bent at the end and flattened toward the other end to indicate to him the direction of the bend. A good irrigator is quickly and cheaply devised by ordering four or five feet of small rubber tubing. This can be weighted at one end by tying to it a good-sized glass stopper. This is thrown into the receptacle containing the irrigating fluid which is set or hung at the required elevation. A wooden snap clothes pin makes a good cut off, and a short section of glass tubing may be inserted into the irrigating end of the rubber tube so that the patient can establish syphonage by suction. The glass tube is then replaced with the aluminum irrigating tube.

Aluminum tubing about three-sixteenths of an inch in diameter outside may be purchased by the yard from dealers in this commodity. From this may be quickly made proper irrigating tubes by slightly heating to soften one end and giving it the desired curve, having inserted a piece of wire a little less in size than the diameter of the lumen.

The antral chisels were made for me by Grady & Co., 45 Wabash avenue, Chicago.

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34 Washington Street.

## DISCUSSION.

Dr. William L. Ballenger:—The Heath operation referred to by Dr. Pierce is based on good principles, but what the results will be can only be shown by experience. Heath reports ten cases in which marked improvement in hearing occurred, and with the closure of the drumhead in seven. Heath claims it to be a substitute for the radical mastoid operation. The principle of the operation is to avoid destroying hearing; in fact, to preserve it. Heath claims the results are equally good in cases of thirty years' standing and in cases of thirty days' standing. I have operated five times by this method, but am not ready to report the results.

I wish to speak of some instruments devised for clearing out the middle-ear cavity by blowing, both during and after the operation. The canulas are so shaped that they are readily introduced into the aditus ad antrum. Air pressure is then applied and the secretions and debris blown out through the perforation in the eardrum. I have three sizes for each ear. They are introduced through the posterior meatal opening down to the annulus, and then turned forward into the aditus. Either air or fluid may be forced out through the perforation in the eardrum. Heath is of the opinion that the Eustachian tube is sufficient to drain secretions from the middle ear, but is inadequate to drain the middle ear, antrum and mastoid cells in combination. So he leaves a meatal opening in the posterior wall of the meatus through which he drains the mastoid cells and antrum, leaving the Eustachian tube to drain the middle ear.

Contrary to what Dr. Andrews recommended, Heath claims it is better to leave the ossicles alone, even when they are much destroyed, because by loosening them we disturb the fixation of the stapes in the oval window, and thus hearing is impaired.

Dr. Allport has devised some very ingenious instruments, and in doing my last Heath operation I discovered that his retractor is very useful to expose the drumhead to view, though the instrument is too heavy. So I have had an instrument made which is an adaptation of Todd's tendon tucker. It is very useful in this operation. It might also be used to expose the middle ear in a radical mastoid



operation. I call it the meatal retractor, as it is used to spread the meatal flaps apart.

As to Dr. Corwin's paper, I think that his instruments are good. A year ago Dr. Vail exhibited an instrument for the same purpose as Dr. Corwin's. His instrument consists of a saw made of a section of a tube. Dr. Vail was the first to introduce the same for making the lateral window. It is a splendid instrument. It cuts out an elliptical-shaped piece very quickly and of sufficient size to thoroughly drain the antrum and leave a nice, smooth cut surface.

Dr. Henry Gradle:—Dr. Stolte's description of the new operation for turbinectomy gives me an excuse to show an instrument which I devised for the partial removal of the inferior turbinal. It is a trephine working in a guard, which consists of a cylinder of brass, and from which one-half of the periphery is removed. I exhibited the instrument recently at a meeting of the Chicago Medical Society. It cuts smoothly and removes the exact amount of tissue desired. With it the operation requires but a few seconds of time.

Dr. Otto T. Freer:—The first description in this society of the operation of the removal of the greater part of the nasal wall of the maxillary antrum for empyema was made by me in 1905, and my recommendation of this procedure met with much opposition at that time. It is a pleasure to note that this opposition has not only disappeared in this association, but that in gatherings of an international nature, such as that of the British Medical Association at Toronto, the operation through the nasal wall has found such distinguished advocates as Dr. C. G. Coakley and Dr. G. L. Richards.

The method which I described in my first communication was that of the resection of the anterior two-thirds of the inferior turbinated body, followed by the removal of the anterior two-thirds of the nasal wall of the antrum in the lower and middle meatuses by means of the straight trephine and burr driven by a strong, high-speed dental engine. I have practiced this method with the greatest satisfaction ever since my first description, and I am surprised that it has been so little adopted by others and that it is thought necessary to seek for other implements, such as forceps and chisels, when the dental engine, burr and trephine have in my hands proven so peculiarly fitted for the work.

Curettement I have never found necessary, although all of my cases were chronic ones, for the suppuration from the antrum always ceased promptly as soon as the large opening for drainage and ventilation was established. The only implement in addition to the trephine and burr needed is a punch forceps to trim off portions of mucous membrane left after the bone has been cut away. A full description of my method may be found in the *Chicago Medical Recorder* for 1905 and the *Laryngoscope* for the same year.

Walter A. Wells, in a recent most complete and admirable article on maxillary sinus suppuration (*Laryngoscope*, December, 1906), objects to the trephine "as difficult to manipulate in the narrow nasal cavity, because held at an angle at which it must be, it tends to slide along the wall and thus injure the surrounding structures, or, having penetrated the cavity, to strike upon the posterior wall and injure the internal maxillary artery or possibly the second division of the fifth nerve." Practical experience teaches me that these objections are merely theoretical. After the removal of the anterior two-thirds of the lower turbinal the trephine may be most accurately applied with the aid of sight to the nasal wall. I have not found that it has the least tendency to slip, as its teeth are held by mucous membrane. The fact that but slight pressure is required to make it penetrate, its advance being due to its high speed rotation, prevents any danger of its punching suddenly through and injuring the posterior wall, an accident much more likely to happen when the trocar or chisel is plunged through the nasal wall. It is possible, by forcing the cartilaginous nose well over, to apply the trephine at only a moderately acute angle to the nasal wall and to bring its cutting edge as far forward as need be.

So painlessly and easily does the trephine penetrate even a thick bony antral wall in the lower meatus that I now employ it for diagnosis instead of the trocar

in this region. In several instances I have failed to pierce unusually thick bony walls in the inferior meatus even with a strong Krause trocar, and the splintering penetration of this instrument, creating a fissured stellate fracture, always in my experience caused a great deal of pain. At present I pass as large a trephine as I can under the intact lower turbinate, bring its cutting edge well forward by pressing over the cartilaginous nose, and I have always found the patient surprised at the ease and painlessness with which his antrum has been entered. An Eustachian catheter is then passed in through the opening made and the antrum washed out, the fluid welling up from its lowest part and thus stirring up and forcing out of the natural opening all thick cheesy pus that may have settled to the bottom of the cavity. The foul-smelling secretion is ejected in a thick stream in a manner that convinces doubting patients of the existence of empyema in their antra and makes them willing to undergo the operation of resection of the nasal wall.

Diagnostic washings through a trocar canula introduced into the antrum through the middle meatus I have not found satisfactory. The reason is that water introduced in this way into the upper part of the antrum of Highmore will not always mingle with the thick pus collected in its lower part; instead of this, flowing over it and coming out clear or nearly so from the natural opening, thus leaving the investigator in doubt as to the existence of empyema of the antrum or making him think the cavity free from pus when in reality viscid, clotted, purulent matter lies in its bottom which will be ejected from the natural opening if the washing be done through an aperture made in the lower meatus. I recommend, therefore, diagnostic opening of the antrum of Highmore under the intact lower turbinated body by means of the trephine driven by a dental engine. The latter should be of high speed and good power.

So far I have had no difficulty in introducing the trephine underneath the elastic lower turbinated body which may be sprung upward out of the way. Should it prove impossible to lift it sufficiently I can see no material objection to passing through both turbinate and antral wall with the trephine.

The objection to the chisel, to my mind, is its tendency to shatter thin brittle bony partitions, such as the nasal wall of the antrum. I have also found that the use of chisels in the nose always causes a good deal of pain. I do not think that the light chisels Dr. Corwin has displayed would be efficient in cutting away the often massive and strong bony base of the nasal wall.

Considering how seldom eurentement is necessary, I do not regard the preservation of the flap described by Dr. Corwin as of practical importance.

Dr. Joseph C. Beck:—Speaking of the Krause trocar, I wish to say that in the last six cases I have used the trocar with much satisfaction. In one case, that of a girl, 18 years old, it was impossible to pass the trocar into the antrum, so that one is likely to encounter these thick bony walls in young persons and in women as well as in old persons and in men. I think that the trocar is one of the best instruments with which to enter the antrum above its floor. My method is to use the trocar previous to partial fracturing of the inferior turbinal, not removing any portion of it, and then the Spiege forceps is passed into the antrum and any sized opening can be made with more ease and with less trauma to the patient than with any other method.

Dr. Pierce, in the case of facial paralysis, mentioned that the connection between the facial and hypoglossal nerve is naturally re-established. That is not true. Whenever the facial nerve is severed and more than one-sixteenth of an inch of nerve is removed, there is no bridging over, and complete paralysis can not be prevented. A re-establishment of function is not to be expected. You must make an anastomosis. The result in Dr. Pierce's case is not due to a little twig of anastomosis, but is the result of an anastomosis between the facial and hypoglossal nerves.

As to the case he exhibited for diagnosis, I think possibly lack of time prevented Dr. Pierce from going into all the details of the case. I would ask whether the patient has received antiseptic treatment, whether any portion of the tissue

has been examined, and whether the tuberculin test was made. I think that would help to clear up the case.

Dr. J. Holinger:—I would refer Dr. Beck to the reports of Dr. Bezold as to anastomosis of the facial nerve.

Dr. Otto J. Stein:—The cases shown by Drs. Pierce and Andrews appeal to me particularly because I saw Dr. Heath of London operate several times. I was struck with his method of operating. He did not use a self-retaining retractor. He made the postauricular incision in the usual manner, and then separated the soft tissues from the bony canal and immediately began to chisel out the posterior-superior canal wall. He soon reached the antrum and after eurenting the aditus he blew out the secretions in the attic and middle ear. I was particularly struck with several omissions in his surgical technic and in his asepsis.

As to the results in his cases, they are about as he gives them in his recent paper. I can not understand why he omits to explore the mastoid process in most of his cases. He apparently made no attempt to do this, but goes into the antrum seemingly disregarding the possibility of a suppurating cavity further down toward the tip. Such a cavity must be present in many chronic cases, and any small sinuses that may be present can not be detected unless we expose the parts more than Heath does. At the same time he must assume that there is no necrosis in the tegmen tympani. He maintains that the "danger zone" is entirely in the antrum, and that there is scarcely ever any necrosis in the region of the tegmen tympani. But how can we tell unless we expose that region? This operation, although it has a place, is liable to prove a serious one when done by men who are not fully posted in the pathology of the ear. So that I would rather caution against too promiscuous operating by this method.

As far as the preservation of the hearing is concerned, that is a point that must be considered. I notice in Heath's report that in some of the cases there was marked destruction of the drumhead and necrosis of the ossicles. In such instances many of us would hesitate to operate after this method.

As to Yankauer's operation, I have raised the hypertrophied tissue from the lower turbinal by a somewhat similar method, although not so extensive. At that time I made just one incision from the posterior end of the turbinal, commencing at the juncture of the lower third with the upper two-thirds and extending from the posterior to the anterior end. I raised the soft tissues by making a large flap above and a smaller flap below. The excess of bone was then removed and the flaps trimmed and brought together, using a packing to keep in place. I had good results, even though I never attempted any suturing.

Dr. L. J. Hughes:—The cases I wish to report illustrate the relation of eye symptoms to sinus disease. The first patient was a young lady, 18 years of age, who had been under the observation of a general practitioner for several years for frontal headaches, which sometimes extended to the occipital region. They were more or less constant. We referred the headaches to the eyes, and on examining these we found marked hypermetropic astigmatism, three and a half cylinders, with 1/25 sphere. She had a correction under atropin, and the symptoms were partially relieved for a while. She also had quite an esophoria, 18 or 20 degrees. Under all the treatment we could give her, both local and general, there was very little improvement, so that we looked elsewhere for the trouble.

An examination of the nose revealed slightly enlarged turbinals and, while the patient was under observation, there developed a fairly large polypi from the middle turbinal. This was excised by Dr. Beck, and her symptoms were slightly relieved. Later on, the middle turbinal became enlarged and pressed against the lateral wall of the septum. It was removed, and almost immediately all the symptoms disappeared, and up to the present time the patient has had relief.

The second patient came under observation last Thursday. The man complained of severe frontal and temporal headaches. He had had some stomach trouble and to this he attributed his headaches. I found that he had a blepharospasm of each eye. Visual acuity was 20/30, and otherwise the eye was normal.



Under atropin vision was found to be practically normal. He had 20 degrees of esophoria, but no marked deviation. The first thing we saw on Saturday morning was a paralysis of the external reetus musele, and, suspecting a specific origin, he was put on mixed treatment. The following morning (Sunday) he was found dead in bed. At the inquest it was shown that last October he was held up and severely battered by footpads. At that time there were marked contusions about the eye and the ear. There was also a history of influenza. The dura was found adherent, and there was a marked hemorrhage all over the brain. The immediate cause of death is open to question, but the possibility of sinus infection due to grip is very interesting.

Dr. Pierce (closing the discussion on his part):—The operation which some of our members have referred to as the Heath operation has, to my certain knowledge, been in service for a good many years. It is perfectly absurd to tack on to a surgical procedure the name of the last man who has written about it. I believe it has a very limited field of usefulness, but that field can not be ignored.

As to the last case I reported, I want to call attention to the fact that when I first saw the patient there was no granulation tissue, the bottom of the ulcer consisting of the bone. There was a slough around the margins of the ulcer, and this was composed of this whitish material, mixed with dark-colored tissue, entirely necrotic. The patient had had antispecific treatment, without any result. I think the case will bear watching, not making any attempt to interfere. I believe it is due in some way to the hysterical condition. Some instances have been observed, and, therefore, I am going to wait and see the outcome of the case. It is changed absolutely in the week that I have had the patient under observation. The ulcer is closing up. Her unconscious spells have entirely disappeared, except the one she had when I examined her for the stigmata which, as I have said, were so typical.

Dr. Andrews (closing the discussion on his part):—I think that the operation in which radical work is done, with the exception of removing the ossicles, has a place, although the field is not a very extensive one. If we can operate and retain the patient's hearing, we ought to hesitate a long while before we undertake to remove the ossicles.

It has been asked what means we adopt to know just exactly what is being done deep down in the operation cavity. I think if we will use a Koerner flap, and make the incisions before completing the bone work, we will have no trouble in easily seeing into the depths of the operation cavity.

Dr. Corwin (closing the discussion):—The chief point I wish to make in speaking of the operation, which is really the Claoué, a modification of the Rethi, is the preservation of the flap. That can be trimmed to any proportions and put through the window to cover with epithelium its lower margin. That is the essential feature of the operation. Saws and trephines and burrs and forceps can be utilized in making the opening, but it struck me that the chisel is very useful in many cases. There is no danger in using it of injuring the flap which one has taken the trouble to save.

*Regular Meeting, March 19, 1907.*

Dr. J. Holinger, President, in the chair.

#### CASE OF EXFOLIATION OF THE OS TYMPANICUM.

Dr. F. G. Stubbs:—This young man, James R., aged 20, has an hereditary crumpling of the auricle, with a supernumerary tragus. The auditory canal has always been extremely narrow and accounts for the course of the disease. While the hearing in that ear had never been acute, yet he had never had any inflammation previous to this attack. About the middle of October, on returning from work, he was taken with a sharp pain in this ear, which continued all night, and kept him from going to work the following day. That evening the pain eased up and he soon noticed what he thought was a moisture from an increased amount of ear wax. The following morning there began to appear a swelling behind the ear



and some paralysis of the same side of his face. The next morning (fourth day) he came to my office, when I saw him for the first time. I found complete facial paralysis, a boggy swelling behind and somewhat below the ear, the canal completely closed, and from which I could see a slight discharge of muco-pus exuding. The same afternoon I operated, making the usual incision as for a simple mastoid, but prolonging the incision farther down than usual. I found pus outside the tip, and on enlarging the incision soon got into an abscess cavity below and anterior to the tip. In this cavity I found the facial nerve, and so I cautiously mopped it out in order to avoid wounding the nerve. Believing I had a Bezold's abscess to deal with, I proceeded to open the cells. I found them normal, but at the same time found the os tympanicum free from all attachments, and removed it entire. The inner third of the soft parts of the canal, together with the middle-ear cavity, was necrotic and had to be curetted, so that I had a condition somewhat similar to part of a radical mastoid, except the attic wall and antrum were not disturbed. In two months the wounds were healed, and I do not think the external canal is any narrower than it was before the operation. The secretion has now ceased, and hearing is about half of normal.

I did nothing for the facial paralysis, as it is shown by experience that where the integrity of the nerve is not injured the usual course is to complete restitution of function. As you see, the results are perfect, but it is only in the last few weeks that it is so.

I am unable to find as far as I have gone in the literature a report of this exact condition of affairs. In young children this part of the temporal bone is not uncommonly cast off as a sequestrum, for at that age it is not attached to the other parts of the temporal by bony union. In the adult it is not rare in syphilitic necrosis to find that all or part of the os tympanicum is cast off as a sequestrum. But in this case it was entirely dissected loose by virtue of the fact that the pus was held back by the narrow canal and thus forced through the suture attaching this part to the squamous and petrous portions. The abscess forming below this and the tip of the mastoid and thus early causing the facial paralysis.

It is well to bear in mind the formation of this portion of the temporal in its embryonal formation, and to remember that this suture is frequently only loosely formed of connective tissue, that the blood vessels pass through it and enter the cells of the mastoid, and hence form an atrium for the infection in the mastoid to pass out and point below the tip of the mastoid.

#### A CASE OF RHINOSCLEROMA.

Dr. F. G. Stubbs:—This patient, Mary G., aged 21, is a native of Austrian Poland. She has been in this country four years. Previous to this time has never been sick, and first complained of this trouble some time after coming to New York, where she first lived. Then she was told that she had only some slight catarrhal affection. Her symptom was an increased nasal secretion. For the space of a few months before coming to Chicago, five months ago, she began to have a slight cough and a peculiar huskiness to the voice. This increased so that the breathing was as loud as a patient with croup and could be heard in the next room.

She was referred to me six weeks or so ago by Dr. Hedger, and I found the following conditions: The lower turbinates on both sides were enlarged in their posterior thirds, larger on the right, firm to touch and of a grayish color. The lower edges of the choanae were thickened, as was the neighboring edges of the septum. The pharynx showed no invasion of the process. On looking into the larynx I found the cords unaffected, but the rima glottis gave the appearance of looking into a cavern. This was due to a subglottic swelling covered with mucus and blackened with Chicago soot. It was difficult to make out any chink at all through which air could pass. I succeeded in passing a No. 2 Schroetter dilator, and continued this every other day at first, till now I have been passing it only once a week. This has relieved her of all dyspnea and reduced the cough. During the time she has been under my observation there has been a perceptible increase

in the size of the swellings already present and an additional one on the base of the tongue.

I excised a piece of tissue from the lower turbinate, and at the same time had cultures taken from the secretion, which was free in the nasal passages. The latter showed almost pure cultures of the rhinoscleroma bacillus, and it was found in the tissue as well. The tissue also showed the typical pathological conditions, including the "Mikulicz cells."

In view of the hitherto unsatisfactory results of treatment, I had not taken up any definite procedure aside from keeping the subglottic space open for easy breathing. Recently there have been a few cases reported in Europe and New York in which it seems evident that the *x*-ray has acted as a specific, so to speak. Of the two cases reported from New York I saw one last spring with Dr. Ballin at the Mt. Sinai Hospital. This case was affected only in the nose and externally, but is reported as cured. It is to be hoped that a cure has been found, for the condition was almost hopeless up to now. Although the disease is not fatal, unless it attacks the lower trachea and bronchial tubes, yet it is a serious form of rhinitis and more to be shunned than atrophic rhinitis.

The importance of presenting this case to you to-night lies alone not in its rarity, and hence an "interesting case," but to draw our attention to the fact that, while there are not a score of these cases reported in this country, there is no reason why they will not become more numerous as our unrestricted immigration allows more of these cases to come among us. The disease is on the increase in Europe, and on account of its infectious nature governmental measures have been talked of in eastern Prussia to deal with it as with leprosy.

Dr. Reichman has offered to use the *x*-rays on this case, and I will present it again so you can see whatever progress is being made. While it is not difficult to apply the rays to the nose, it may be more difficult to reach the interior of the larynx. We hope to obtain therapeutic results by applying them over the larynx. If it does not prove active, then it is a question whether by the aid of tubes the rays can be applied through the mouth or a laryngo-fissure have to be done and the larynx kept open while the treatment is being carried on.

#### DISCUSSION.

Dr. Elmer L. Kenyon:—One important matter with reference to rhinoscleroma is the making of an early diagnosis. I doubt whether rhinoscleroma has ever been seen and diagnosed so early that the disease could be handled at the beginning. This is unfortunate, because the condition is a serious one; when it attacks the larynx it must be considered as approaching carcinoma in seriousness. Dr. Stubbs' case is a late one, but there are appearances in the nose which possibly represent conditions which might be found at the beginning of the disease. I refer to the hypertrophy at the middle portion of the right lower turbinate. Laryngologists should be on the alert to become familiar with the conditions which make possible an early diagnosis.

Concerning treatment, surgery, excepting in the direction of alleviation, has invariably failed. The tumor removed from the nose in the case I studied returned exceedingly rapidly within a few weeks.

There is reason to believe that native Americans are susceptible to the disease, although it is fair to suppose that the infection has not been present in this country except as brought in. Several years ago a Buffalo physician reported a case occurring in a native American who had never been out of the country. However, in that instance a microscopic diagnosis was not reported.

The patient I saw had drifted from physician to physician for five or six years without receiving a suggestion of a correct diagnosis. Recently I saw a case of carcinoma of the larynx which had gone through much the same experience. It seems to me desirable that when the opportunity arises something should be said in the way of impressing upon general practitioners the importance of having an expert examination made where diagnosis is doubtful.

## A CASE OF IDIOPATHIC ABSCESS OF THE NASAL SEPTUM.

Dr. J. Holinger:—This little boy of 5 years traveled with his father across the country on a very cold winter day about a year ago. On returning home his father noticed a red swelling in both nostrils. Nasal breathing was impossible. When I saw him five weeks later the mucous membrane of the septum filled both nostrils. The condition has changed comparatively little since then; the swelling is reduced. There was complete absence of the cartilaginous septum from the beginning. Pus was discharged from the swellings in both nostrils and from the right upper incisor, on pressure of the gums. The tooth was extracted. The mucous membrane of the septum was treated as in acute anterior rhinitis, but improvement was very slow. The bone below the apertura pyriformis became thickened and small spicule of bone were repeatedly exfoliated. I made an incision into the swelling and at every treatment I evacuated a few drops of pus. During the last two weeks, that is, over a year after the beginning of the disease, the permanent incisor tooth erupted in an abnormal position from the anterior surface of the gum. The abscess is drying out very slowly. The triangular cartilages have disappeared.

A CASE OF CHRONIC AFFECTION OF THE EUSTACHIAN TUBE; 3  
SCHWARTZ, 1 RADICAL OPERATION; PERICARTILAGINITIS;  
CURED PARALYSIS OF THE FACIAL NERVE.

Mr. N. was seen the first time in July, 1903, complaining of nearly the same symptoms as he does now, namely, headache, dizziness, running of the right ear, noise. The Eustachian catheter relieved all symptoms and the functional tests showed that there was no other change in the middle ear. A course of treatment with catheter improved the condition. He left the city. Soon all his ailments reappeared. I saw him again in summer of 1905, when he had a large suppurating fistula behind his right ear, packed with iodoform gauze, and again he complained of dizziness and headache. He gave the following history: He was operated upon in fall of 1903 in Chicago and made a very slow recovery extending over three months. He was operated upon a second time about two months before I saw him in 1905. A large scar in the neck behind the sternocleidomastoid muscle dated from an abscess operated in 1903. He said that the depth of the wound was cauterized at regular intervals by his doctor in Des Moines and till the fistula would not close. I catheterized the tube every second day and the fistula closed after two weeks. He again left the city and reappeared at my office last June. He was previously operated upon for the third time in March, 1906. He complained again of headache and dizziness. A course of treatment with the catheter relieved him temporarily, but he wanted to be cured permanently. I therefore proposed radical operation, which was performed in Alexian Brothers' Hospital. A large keloid in the old scar was removed. The bone was very hard and showed no cells. A fistulous tract began one centimeter below the outer plate above the antrum, and led to a whitish fibroid mass, round in shape and one and one-half centimeters in diameter, which was not well outlined from the surroundings except from the tympanic cavity. This mass made me suspicious of carcinoma and was therefore completely removed, regardless of consequences. The posterior semicircular canal was opened and the dura exposed to a large extent. The whole posterior bony wall of the meatus was removed, together with the incus. A "Y"-shaped incision in the concha, suturing and packing through the wound in the concha were done in the usual manner. The specimen was lost, notwithstanding the extreme care that was recommended for its preservation.

The next day there was complete facial paralysis on that side.

He made a very slow recovery. The first dressing was changed 5 days after operation; 10 days after operation swelling and pain in the auricle appeared. The dressings were changed every day. The auricle was exposed to sunlight for hours. A perichondritis ran its full course and left the auricle with a horizontal

fold above the meatus. The epidermis of the wound was very slow in forming and took over 8 months, five times as long as usual. The drum membrane regenerated to its full extent, and with it the old complaints of headache and dizziness reappeared.

The lack of any tendency of healing is shown in another fact. The wound behind the ear had healed by primary union, when several months after operation a suppuration started up from a part of the wound, that was dry and epidermized for several weeks. It destroyed all support of the scar and left, after a long course, a deeply retracted, funnel-shaped scar, with a very narrow, perpetual opening behind the ear, which I am going to leave untouched, as the slightest touch with a probe wound with cotton is liable to start a suppuration lasting for months.

The ear is dry at present. Now and then a small drop of pus forms in the outer excavation of the canal from under the outer scar. The paralysis of the facial nerve has disappeared, he closes the eye and moves the angle of his mouth.

The functional tests show:

Hearing distance H. r. ear 0 for whisper, l. ear 5 m. for whisper. Rinne test, R. r. + t., l. ear + 10.

Weber-Schwabach's test: W. S. A. in the l. ear + 15. A' in the r. ear.

Lowest sound heard: r. ear 38 V. d.; l. ear A'.

He comes three times a week for catheterization.

The features of this case are:

1. Three Schwartze and one radical operation on account of symptoms due to occlusion of the Eustachian tube.
2. Complete paralysis of the facial nerve, cured.
3. Extremely poor tendency of healing of the soft parts and the bone.
4. Pericartilaginitis of the auricle cured with scar.
5. Except discharge, persistence of the original symptoms, headache, dizziness, subjective noise, which are all relieved after catheterization.

This last point involves theoretical questions: How can those symptoms be explained in view of absence of the incus? Suction on the stirrup?

#### DISCUSSION.

Dr. J. C. Beck:—I would like to ask Dr. Holinger why he called the first case one of idiopathic abscess. Supernumerary teeth and alveolar abscesses frequently burrow along the septum, thus causing the condition seen in this case. The appearance of sequestra and pus and the later eruption of the tooth show that such a condition may have existed. I have a similar case under observation. Leaving the pus cavity alone shows an extension along the floor of the nose toward the septum, and when opening the cavity pus exudes and the boggy and swelling in the nose disappear. A radiograph may show more than one tooth, and I would suggest that Dr. Holinger have one made. It may suggest a cause for the condition.

In regard to the second case, it is nice to see so many cases that get well without operative interference, but I think you will find that the continuity of the facial nerve was not destroyed entirely. Inflammatory conditions will produce facial nerve paralysis, and when this subsides the nerve regains its function.

With regard to the use of x-ray tubes in the mouth, that is impossible, because we can not get a bulb that is small enough to throw a direct ray on the larynx, and the ray can not be deflected, but can be passed through the neck.

Dr. Holinger (closing the discussion):—The tooth did not appear until about two weeks ago. Before that it looked like a callus. I think the abnormality of the tooth is rather effect than cause of the suppuration, because a thickening of the bone began to develop only eight months after the tooth was pulled, and even now the abnormal tooth is far ahead in development of all other teeth, owing to the early extraction of the milk tooth.



## CASE OF LARYNGEAL NEOPLASM.

Dr. Otto J. Stein:—The patient is a man, 48 years old and a coal dealer, who has always been healthy. No history of venereal disease. His father is still living; his mother died at the age of 60, of some heart affection. The family and personal history is absolutely negative. The present trouble was first noticed as a hoarseness less than four months ago. It came on gradually, but finally got so bad that he consulted a physician, who treated him expectantly. He has lost about ten pounds in weight in six months. His appetite is good; temperature is normal. Examination of the chest disclosed an emphysema of no great moment. The sputum was negative. The man had a severe pharyngitis when first seen, but that has disappeared.

On examining the larynx nothing is seen above the cords, but below the right cord there is visible a tumor that is attached to the lateral wall of the larynx. The cord is quite red, thickened, and almost immovable. At the edges it is slightly ragged. The left cord is normal. There is fair compensation and approximation is very good. The tumor has a yellowish-pink color, suggesting a papilloma or granulation tissue. On palpation there can be felt slight enlargement of the glands of the neck, but palpation of the larynx shows no marked thickening on the right side. Evidently the mass takes its origin deep in the tissues of the larynx. Microscopic examination of the tumor mass showed granulation tissue. The history and laryngeal picture indicate a malignancy. If this is the correct diagnosis it is imperative to operate radically and without loss of time in order to secure the most favorable prognosis.

## DISCUSSION.

Dr. E. Fletcher Ingals:—The history of this case is so typical of malignancy that it seems that there is no chance of its being anything else. There are only three things that it might be, syphilis, tuberculosis, or carcinoma. From the history, I would say carcinoma. The cases of subglottic tumors that I have seen do not show up very much, even though they involve considerable tissue, and prevent the movement of the cord. I have not yet seen any that could be successfully removed in any other way than by a laryngectomy, for the reason that, although the growth may have appeared small on laryngoscopy, it was shown at the operation to have passed a considerable distance beyond the median line.

Dr. G. W. Boot gave a demonstration of preparations of sections of the human embryo, showing the development of the nose, antrum, sinuses, and portions of the middle ear.

## DEMONSTRATION OF PROBABLE ANGIOMA REMOVED FROM EXTERNAL AUDITORY MEATUS.

Dr. George E. Shambaugh:—You will remember that about a year ago I exhibited before this society a patient who had vicarious menstruation from the ear, the bleeding taking place from a swelling on the upper anterior wall near the external part of the meatus. The growth filled about two-thirds of the meatus, and terminated in a nipplelike projection. A crystal of chromic acid checked the bleeding, but the swelling was the source of a great deal of annoyance. The tumor was removed six months ago, and there has been no evidence of recurrence. At the menstrual period the ear previous to the removal would become red and annoy the patient very much for a week. The tumor bled freely at its removal. It shows a very greatly thickened skin; the deeper structures are very vascular. The tissue resembles the erectile tissues of the turbinated bodies. The tumor is evidently a form of an angioma.

*Regular Meeting, Tuesday, May 21, 1907 at 8 P. M.*

Dr. J. Holinger, President, in the Chair.

## ANASTOMOSIS OF THE FACIAL NERVE WITH THE HYPOGLOSSAL NERVE.

Dr. Joseph C. Beck:—The case was one of angio-endothelioma of the middle ear, involving the facial nerve, in which a radical operation was done a year ago.

A secondary operation was done on the facio-hypoglossal nerve, the anastomosis being made by implanting the facial into the hypoglossal seven weeks ago. Contraction is beginning to appear in the lower facial muscle. A recurrence of the tumor was also removed at the same time. Since then there has been no recurrence. The hypoglossal nerve was situated low down and considerable traction had to be exerted to effect the anastomosis; hence the nerve was kinked, and this was the cause of this partial paralysis of the tongue.

#### DISCUSSION.

Dr. John G. Wilson:—It is not possible to get the functional union of the facial nerve with the hypoglossal by merely laying the former along the side of the latter. What is necessary is to implant the peripheral end of the facial on to the central end of a part of the whole of the hypoglossal. To do this some fibers of the hypoglossal must be cut. So the paralysis Dr. Beck refers to as a flaw in his results, could not possibly be avoided; on the contrary, he is to be congratulated that the resulting paralysis is so slight.

Dr. Beck (closing the discussion):—Dr. Wilson saw the first case I operated on and pronounced it a good result, and yet there was no paralysis. I did what I attempted to do in this case—implant the facial stump into the hypoglossal, turning it upward, so that the fibers from the hypoglossal would carry stimuli to the facial stump.

#### THE PRESENT STATE OF OUR KNOWLEDGE WITH REGARD TO THE PHYSIOLOGY OF THE SINUSES ACCESSORY TO THE NOSE.

(Abstract.)

J. GORDON WILSON, M.A., M.B. (Edin.).

The various hypotheses that have been advanced from time to time to explain the presence of the accessory sinuses of the nose make an interesting chapter in the history of medicine. From the early period when they first attracted notice down to the present time more or less plausible theories have been in vogue. Thus, they have been supposed to serve to secrete mucus. But the position of the nasal openings of the principal sinuses is obviously opposed to such an hypothesis, to say nothing of the fact that under normal conditions mucus is not present in these sinuses. They have been held to be necessary to produce a sonorous voice. Especially was this supposed to be the case in regard to the frontal sinus; but the irregularities in its shape and the fact that it may be absent with no apparent alteration in vocal resonance, as well as its more or less obliteration in pathological cases with no apparent change of voice, require the abandonment of this theory. In the orang, Zuckerkandl states that at one time he thought it possible that the large sinus maxillaris there present might act as a resonator; but the inconstancy of its formation led him to abandon this supposition.

Before discussing more recent views on the physiology of the accessory sinuses it may be well to recall certain facts with regard to their embryology and some points in regard to the physiology of the nasal cavity, which bear on this problem.

1. *Embryology*.—The accessory sinuses are produced by the projection outward of the nasal cavity. In the mesoderm which surrounds the primitive nasal cavity there is formed within its interorbital septum a cartilaginous plate with openings for the branches of the olfactory nerve. This plate sends down two cartilaginous laminae to form the side walls of the nose and a medial plate dividing the nasal cavity into two parts. The ends of these cartilaginous side walls, and the ridges which appear on it, form the embryonic chief turbinates. Lying in these furrows between the ridges one notes accessory turbinates formed in the same way and separated by accessory furrows. In the course of development the embryonic chief turbinates are reduced in number to three or four.

The sinuses are developed by a widening out of the accessory furrows. This is especially well seen in the frontal sinus, which develops from a depression in the furrow which lies between the first and second embryonic turbinates. By the increase and growth of this into the frontal bone the frontal sinus is formed.

At birth it is not present and only begins to appear as other than a slight depression about the sixth or seventh year. The sphenoidal sinus arises in the posterior part of the nasal cavity and by some has been regarded as the posterior part of the primitive nasal cavity inclosed in bone, by others as a depression which invades the body of the sphenoid. The maxillary sinus is foreshadowed by a small depression which is easily seen at birth on the side wall, in the furrow between the horizontal part of the first and second turbinates. The ethmoid cells arise from the anterior part of the chief embryonic furrows. In these the accessory turbinates and furrows widen irregularly, the tops of the furrows adhere more or less closely to form primitive chambers. The final state of the pneumatic chambers differs. Whilst the frontal, sphenoidal and maxillary press into the skull capsule, the ethmoidal are limited as a rule to the cartilage and bone from which they started, though occasionally they may invade the adjoining bones. It has to be noted that though the primitive ethmoidal cells have olfactory epithelium, the secondary never have. The frontal, sphenoidal and maxillary sinuses never have olfactory epithelium.

2. *Comparative Anatomy.*—Comparative anatomy shows how widely distributed pneumatic chambers are, how large they may become, and what a variety of purposes they may serve. In birds, where they are well developed, their function has been the subject of much controversy. Generally the skeletons of large birds that fly well (storks and swans) are most pneumatic; but there are many exceptions. Thus the bones of the swifts are solid and the air cells are chiefly confined to the cranium; many parts of the skeleton of the large ratitæ are very pneumatic. Some of these air sacs are for sexual adornment (bustards); others act as resonators (prairie fowl); others serve as reservoirs for air (lark and nightingale). But their principal function seems to be to assist the respiratory mechanism by “ventilating the lungs and to regulate the exhalation of watery vapor” (Newton).

In mammals, in addition to those found in man, there may be others present. Thus in the deer they are present in the palate bone. They are very large in animals with massive heads, e. g., the elephant. The deduction one must make from a comparative study is that these cavities enlarge, with the least degree of weight, the osseous areas necessary to these animals. At the same time one notes that animals with perfect smell apparatus have very large ethmoidal cells, which outweigh the frontal and sphenoidal sinuses; and that animals with very little smell have the ethmoidal cells reduced in size or may even have them absent.

There are four hypotheses in regard to the physiology of the accessory sinuses that I wish to discuss.

1. That they supply warmth and moisture to the inspired air.
2. That they are olfactory cavities.
3. That their position causes a passage of air over the olfactory mucous membrane.
4. That they lighten and increase the mobility of the head.

1. That they supply warmth and moisture to the inspired air. All acknowledge the advantage of nasal respiration and recognize that the inspired air receives heat and moisture. We have very good proof that this is the function of the turbinates. We have no reason to believe that the accessory sinuses play any part in this, but, on the contrary, we have, I believe, very good proof that they have little or no effect on the change. In the first place, the mucous membrane of the sinuses is very thin and poorly supplied with glands and blood vessels. Again, the cavities themselves are relatively too small to have any perceptible effect even supposing they were capable of being sucked dry; I believe the amount of air that passes out during inspiration is relatively small. In short, it appears to me that the supply of warmth and moisture they are capable of giving as cavities is practically negligible.

2. That they act as olfactory chambers. As opposed to this, one finds that the olfactory nerve has no endings there; that the lower apes and children in whom smell is present have no sinuses; and that anosmatic animals possess

sinuses. Against this not one positive fact can be advanced to support this hypothesis.

3. That their position causes a passage of air over the olfactory mucous membrane. This theory is based principally on the experiments of Braun and Classen, who showed that there was considerable variation in pressure during respiration in the chambers accessory to the nose; and concluded that while in normal respiration the air does not pass over the olfactory region, yet the secondary current resulting from this variation would carry odorous particles to the olfactory mucous membrane. There are many objections to this hypothesis. Thus acknowledging that secondary currents exist, it was not shown how those related to the frontal and maxillary sinuses could affect the olfactory mucous membrane. Further, if the sinuses play so important a part in smell, it is difficult to understand why in man they develop so late in life and may even fail on one side without compensatory enlargement on the other; also why in some of the apes they are poorly developed and sometimes not present.

4. That they lighten and increase the mobility of the head. The study of comparative anatomy strongly favors the view that pneumatization of bones is for the purpose of combining strength with lightness. This is well seen in the larger mammals. For instance, in the elephant, where the massive head with its relatively small cranial contents has to give powerful insertions to a musculature which will move the head and trunk, we find the air chambers of huge proportions. In the apes the small head with the small cranial contents and the reduced amount of musculature is associated with a diminution and in some cases with an absence of sinuses. In man the increased size of the brain to be protected and supported, is accompanied by increase in the size of the sinuses.

At present the weight of evidence appears to me to support this hypothesis. Yet there are some points which make one hesitate dogmatically to assert that this is their only function. Chief among these is the fact that developmentally they are outgrowths of the nasal cavity and so primarily may be supposed to form a functioning part of this cavity—respiratory or olfactory. A complete solution can only be hoped for, from a study of embryology and comparative physiology.

#### DISCUSSION.

Dr. E. Fletcher Ingals:—This Society is to be congratulated on having a member who is willing to devote his time to research in a subject about which we know so little, and need to know so much.

Dr. Charles M. Robertson:—I do not quite understand the litmus paper experiment. It seems to me that if the doctor put litmus paper into the opening made in the frontal sinus, the air would pass through there during inspiration.

Dr. Wilson:—The glass tube is put in airtight, so that no air can get in.

Dr. Robertson:—As regards the function of the accessory sinuses, aiding in the resonance of the voice, the only way to determine that would be by making a photograph of the sounds, which is done by the sound waves producing vibrations and recording them on an apparatus made for that purpose. I think that the presence of anything in the nose certainly does impair the resonance, and it has always seemed to me that the accessory sinuses were particularly adapted to increasing the resonance in the voice.

So far as the olfactory function is concerned, I am sure that no olfactory nerve filaments are to be found in the membrane lining these cavities. As for warming the air that is inspired, one can see how that would be possible if the air came in contact with the mucous membrane, but if these accessory sinuses possess any function at all, it is probably that of regulating the resonance of the voice.

Dr. Edwin Pyncheon:—It seems to me that one of the functions of the sinuses is to lighten the bone in such a way that the brain does not suffer by concussion in case of external injury.

As regards the influence of the sinuses upon vocal resonance, they undoubtedly contribute much to that purpose. Of all races, the Africans have sinuses



as large as any, and the singing voice of the African is known to be very melodious.

As regards the function of warming and moistening the air, it appeals to me very strongly. In fact, I fully believe that this is the chief and principal function of the sinuses.

As regards the direction of the air current in inspiration and expiration, it is well known from investigations made by Freeman, of Philadelphia, and others, that the inspired air passes chiefly about the middle turbinal. In fact, as it strikes the middle turbinal it is divided so a portion thereof goes through the superior meatus. Why does the air go in this direction? The openings of the anterior nares are almost horizontal and if air is drawn in slowly, it may not take that direction; whereas when it is drawn in fully it will go toward the roof of the nose. Why is it that the air goes out through the lower part of the nose in expiration? The air in its outward passage strikes the vault of the postnasal space, which tends to direct the current toward the inferior meatus.

Dr. J. Holinger:—The functions of the accessory sinuses of the nose in one animal can not be compared with the functions in every other animal. Take, for example, the elephant, where the system of frontal sinuses is developed to such an extent that the whole front and upper part of the large skull is a mass of sinuses. The object undoubtedly is to create an immense crust over the back of the head for the insertion of the muscles of the neck, governing the motions of the head and the trunk. The function of the sinuses in the elephant is merely an architectural question because of the need of a large place of insertion for these muscles.

Another point is the great difference in size and relative position of the sinuses existing among the various races of men. I think we hardly made a fair start in the investigation of these problems by taking accurate measurements of the width and height of the face, compared with the width and height of the nose. This so far has produced no other result than to show that the width of the face is proportionate to the width of the nose. In other words, that the width of the maxillary sinuses are equally proportionate to the width of the face. There are such great differences in the architecture of the skulls of different races that I think we might by comparing those factors get at the points equally as well as by comparing the skulls of the different animals.

Dr. William L. Ballenger:—I want to ask Dr. Wilson a question. We are at times placed in a position where we must operate on these sinuses. From a physiologic point of view, what harm might result from a complete exenteration of the ethmoidal sinus?

I frequently have had patients where, after removing the ethmoidal cells, the sense of smell was instantly restored. Of course, that was because of the closure of the olfactory fissure before operation, and the diffusion of odorous particles did not take place.

Dr. Wilson (closing the discussion):—I am very glad that my paper has elicited such free expression of opinion on this subject. Of course, my investigations have just started. On looking up the literature on physiology of the sinuses, it proved to be very small in amount. In discussing the subject one has to remember that it is not enough to frame an hypothesis which may appear satisfactory in one or two animals, or even in man. What we want is a theory that will be generally applicable to these accessory sinuses. The theory which best satisfies these conditions at present is the one which holds that these sinuses lighten the weight of the head and increase its mobility. To object to such a theory by statements based on belief in the efficacy of some other hypothesis is not enough. For instance, it is not enough to say that one believes that the lining membrane of these sinuses imparts warmth and moisture to the inspired air. One must give foundations for the belief.

As to the question of these being vestigial remains of olfactory organs, I do not know that that will help us out. Simply to mention such looks to me like begging the question! so far, not the slightest proof has been advanced in support of this contention.

Dr. Pyncheon raises an important point when he draws attention to the question of the projection of the superciliary ridges as an index of the size of the frontal sinuses. That their size may bear some relation to the size of the sinus one must acknowledge, but to regard them as indices would be, it appears to me, to attach undue importance to their prominence and inevitably lead to miscalculations. Anatomically one may find large ridges and by no means corresponding large sinuses; to give but one example, negroes have marked superciliary ridges, but as a rule small frontal sinuses. The other point Dr. Pyncheon raises, that normally the main current of inspired air rises as high as the superior turbinal, I can not agree with. I should place it in relation to the middle turbinal.

I have left Dr. Robertson's remarks to the last, since I recognize here a difficulty in giving satisfactory proof. We have no evidence that these sinuses act as resonators—as cavities accessory to the nose they may. Secondly do so by modifying the amount of air space in the upper passages so as to affect resonance. Their position, their variations in size, the character of these openings speak against their main function being to act as resonating cavities; and in addition the true resonators are developed in relation to the sound-producing organ—the larynx. I do not know that the voice has been photographed before and after sinus operations.

I have been asked what harm could come from removal of the ethmoidal sinus. Speaking generally, one would say that the primary harm would come from destruction of the olfactory mucous membrane, necessitating injury to its lymphatics which connect so closely with the subarahnoid and subdural spaces. Further the relation of the posterior ethmoidal cells with the optic nerve has to be thought of.

#### WHAT CONSTITUTES AN ADEQUATE PREPARATION FOR PRACTICE IN A SPECIAL FIELD?

(Abstract.)

GEO. E. SHAMBAUGH, M.D.

Work in the several special fields has been carried so far beyond the scope of the work that the internist is prepared to do that the necessity for special training for the men entering the practice of the specialties is apparent. The development of the specialties has come about so rapidly that this demand for special training is necessarily a recent one. It presents a problem in medical education we have not yet solved. A few weeks' or months' attendance on clinics in our so-called postgraduate schools does not in any measure constitute an adequate preparation for the man entering the practice of a specialty. The training of the specialist should be as much in the fundamental sciences of his specialty as in the clinical side. In the training of the general practitioner we require a knowledge of general anatomy, general physiology, embryology and pathology. It is just as essential that the specialist in order to have a clear understanding of the clinical problem of his specialty should have a thorough training in the special anatomy, the special physiology, embryology and pathology of the field with which he has to deal.

This work should be put on the basis of genuine graduate work; that is, it should lead up to the frontier line where the actual research is being done and where the unsolved problems in the subject can be presented and discussed. This work can be properly done only in our universities. It could be so arranged as to lead to the granting by the university of a higher degree in medicine, the degree of doctor of philosophy, for example, in ophthalmology, or in otology, just as is now being done for the men working in the other sciences, as physics, chemistry, etc. The offering of such courses even by one or two of our best equipped universities would serve to stimulate higher ideals and better preparations in physicians all over the country entering the practice of the specialties. Our great need is not for more specialists, but for properly trained specialists.

## DISCUSSION.

Dr. Norval H. Pierce:—I have been teaching in postgraduate work for over fifteen years, and I very soon found how inadequate such work is. It is a shame that in this great city postgraduate work has gone to such absolute misuse. That it is foolish for a man to come here and study six weeks at the most and expect to master a specialty that requires at least considerable manipulative dexterity is apparent. I do not recall a single instance where I have regarded the work done by such men who came to my clinics as in any way satisfactory either to me or to those men for my trouble. It is largely a waste of time. There is neither beginning nor end. It is all chaos. I am sure that every man who has had any experience in this line of work will agree with me the time has come when such a paper as Dr. Shambaugh's is exceedingly timely.

How many of us are familiar with the science of sound? How many of us realize the difference between mass vibration and molecular vibration? How essential these problems are to the comprehension of our daily work? Therefore, I am in hearty sympathy with the proposition that physics as relating to sound should be a requisite in the training of the otologist, as much so as is the embryology and the anatomy of the parts. I wish to voice my appreciation to Dr. Shambaugh for this timely paper.

Dr. J. G. Wilson:—We are all agreed, Mr. President, that the improvement of postgraduate instruction is one of the most urgent needs in present-day medical education. This Society ought to do all in its power to further the object that Dr. Shambaugh has so well stated in his paper. I feel confident that if a representative body of medical men in Chicago should ask the universities in the state to assist in the advancement of postgraduate work, these universities would listen with a great deal of sympathy to the request. But the sincerity of the request must be evident in the hearty, unselfish cooperation of each society and of each school. To attain to this we require to educate not only the general practitioner but the specialist, and I look upon Dr. Shambaugh's paper as a necessary step in that direction. So far as a special degree is concerned, I regard that of less importance. No doubt such a degree would give a hall-mark to a man, indicating what he has done; but I believe its possession would be apt to be overestimated. What is wanted at present is opportunity to work in the branches directly bearing on our specialties. Is it not possible to have all the schools in Chicago interested in laryngology and otology agree to organize and recommend to their graduate students special lectures on scientific subjects and special practical courses in anatomy, physiology and pathology, bearing directly on these special subjects—such lectures and courses to be given by competent men who should receive sufficient remuneration? Such courses might very well fit in with and form a valuable adjunct to the clinical instruction which these schools are at present so well giving.

Dr. C. M. Robertson:—It is a shame that men can come to this city to take up a specialty, stay six weeks or even less, and then feel that they have mastered it all. There is a movement on foot now in the University of Chicago, where Dr. Shambaugh and Dr. Pusey are doing work of this kind, and in the Northwestern University there is under advisement at the present time a course to elaborate such a scheme as this. The only question is, How much can you force the undergraduate student to do in this work, and also how can you teach postgraduate work in an undergraduate school?

As regards postgraduate teaching, men do not care to spend more than six weeks here, although the facilities for teaching are just as good as they are elsewhere. Many of these men go to Germany, even though they do not speak or understand German. It seems to me that the postgraduate schools of this city are at the end of their string. That is shown by the fewer number of students coming here. They are not coming because they can get better work elsewhere, and yet our facilities are the equal of any. It seems to me that courses in pathology, physiology and anatomy are very essential. I tried to arrange such a course in the polyclinic, but when I submitted it, all the men in the school jumped on me

and said that I was trying to advance myself at the expense of others. So I dropped it.

Every member in this society ought to bring his influence to bear on the colleges in this city, so that every man might take up a certain amount of work, if desired, and become proficient in it. If he inclines to laboratory work, let him become an expert in that work. So, too, with clinical and dead-house work. The universities all seem willing to do it, and some of the postgraduate schools do it. Those that are run for profit may not be willing to do this, but even if they are not, the students would go to schools where they can get the work they are after.

Dr. Joseph C. Beck:—The solution that appeals to me is one recommended by Dr. Price, of Philadelphia, a gynecologist of note. He believes that every specialist should take into his service a young graduate and teach him his specialty. I have followed this method ever since I have been practicing a specialty, keeping the young man with me for at least three years. The third man is still assisting me, and a second man has begun his course. I consider the first man a specialist. I believe Dr. Shambaugh's suggestions are excellent. Every man contemplating special work should take up anatomy, pathology and physiology as outlined by Dr. Shambaugh. I would suggest, with reference to pathology, that we are very negligent in not studying the tissues which we remove, but throw them away. Of course, we have not time to work them up, but I am sure that it would be possible to have the student whom one is developing as a specialist to examine all tissues. That would do much for pathology.

In regard to the education of postgraduates, it has been my experience that these men are not particularly interested in the removal of tonsils and adenoids, and the use of the spray. Pathology and diagnosis are sadly neglected. If there are not enough schools to train specialists, there are plenty of specialists who can do this work.

Dr. J. Holinger:—There is one point which I think we overlooked, and that is the financial question. If a man has devoted himself up to his twenty-fifth year to the study of medicine, he can not, as a rule, afford to work two or three more years without any remuneration, and at an increased expense to himself. The undergraduate student can live cheaply, but after graduation he can not do this. He must have a good appearance and he must live in good quarters. Therefore, assistants in large clinics ought to be paid some salary. The attending man also ought to obtain some compensation, that he can give a certain amount of time to this work of training competent assistants.

Dr. Shambaugh (closing the discussion):—I am, of course, much pleased with the discussion my paper has received, and most of all because it has brought out the fact that we are more or less of the same opinion in regard to the need for more adequate instruction to the men entering the practice of our specialty. This field of graduate work is a comparatively new one, and the problem of giving proper training is still to be solved. I am a firm believer that in the solution of this problem Chicago will play an important part. The discussion of this evening shows that the men in this Society have the first requisite necessary to bring about a proper solution of the question; i. e., we have an appreciation of the great need for such work. The men in this city who would participate in the development of proper graduate training for the prospective specialist must realize, first of all, that it will be expected of them to devote enough time and thought to some particular branch of our work, so as to command from others the recognition that they are an authority in this particular thing. One thing is certain, the men of this country who are entering specialties and limit their preparation to a six weeks' postgraduate course or to a few months' trip abroad are not adequately prepared. The mere hanging out of a sign does not make a specialist of a general practitioner. We are coming very rapidly to the stage where to be recognized as a specialist the physician will be expected to have made such a careful study of some branch of the specialty that he will be able to make a contribution to our knowledge of this field. It is not material that this con-



tribution should have a special practical bearing as far as we are able to see at this time. A specialist who makes a contribution to the embryology or the histology of the part of the organ we have to deal with must of necessity have familiarized himself in a large measure with the whole anatomy of this region; otherwise he would be unable to prosecute successfully any piece of research, however technical.

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*JOINT MEETING OF THE CHICAGO SURGICAL SOCIETY AND CHICAGO MEDICAL SOCIETY, APRIL 10, 1907.*

Dr. D. W. Graham, President of the Chicago Surgical Society, in the Chair.

Symposium on Surgery of the Nervous System. 1. Technic of Exposing the Operative Field in Surgery of (a) The Brain, by Dr. Jacob Frank; (b) The Spinal Cord, by Dr. A. E. Halstead. 2. The Present Status of Surgery for Tumors and Localized Infections of the Brain and Spinal Cord (a) Symptomatology and Diagnosis, by Dr. Archibald Church; (b) Operative Treatment and Post-Operative Results, by Dr. J. B. Murphy. 3. Closure of Cranial Defects, by Dr. Weller Van Hook. 4. Surgery of the Trifacial Nerve, by Dr. M. L. Harris. 5. Nerve Grafting, for Infantile Paralysis, by Dr. E. W. Ryerson. Discussed by Drs. Julius Grinker, L. L. McArthur, A. D. Bevan, Carl Wagner, and, in closing, by Dr. Jacob Frank.

Dr. Jacob Frank discussed the technique of exposing the operative field in surgery of the brain. After describing the operative technique, he said that the various operations for opening the skull for the removal of tumors or the evacuation of localized infections may be divided into the following groups: 1. simple resection of the skull. (a) With the trephine; (b) with the chisel and mallet. 2. Osteoplastic resection of the skull. These divisions were discussed at considerable length. He outlined the technique of Wagner's operation.

The method which he uses in making the osteoplastic flap is as follows: The usual skin incision is made through the soft parts, and the line for making the bone flap selected, which is about one-half inch from the skin margin. Before using the linear craniectomy forceps, a small opening in the skull is made with a small trephine or chisel and mallet. Into this opening the forceps are introduced, and the formation of the bone flap begun. Whenever a place is encountered where the forceps are cramped, the line is enlarged a trifle, with a small trephine or chisel. This allows freedom for the linear craniectomy forceps to continue the further biting away of the bone until the desired amount is cut through, leaving a base undivided. At this point, the bone is chiseled through subcutaneously, fractured, and the flap lifted back. Trephining or chiseling over the sinuses must be avoided; but should it be necessary to remove the bone covering any part of the sinus, it can be more safely removed by a rongeur forceps. The dura is now opened by the crucial or flap method. With a sharp-pointed hook the membrane is raised and a small incision made. This is continued with a blunt-pointed scissors. If the flap method is employed, the line of incision should be one-quarter inch from the margin of the bone, and it should be planned so as to avoid cutting across the trunks of the blood vessels. As the pia mater is very vascular and very thin, it can not be handled as the dura by incising, but must be opened by teasing it away. The control of hemorrhage from the scalp is temporarily checked by the constrictor, as described above, and permanently controlled by first applying T-shaped forceps, and then by ligation. The suturing of the wound also helps to control the bleeding. The hemorrhage from the bone can be arrested by Horsley's wax; pressure with gauze; plugging the bleeding point with catgut; driving into the diploë decalcified bone pins; gently squeezing together the tables of the skull with a strong bone forceps, and by hammering the chisel against the bleeding point. The bleeding from the dura is easily controlled by ligation, and from the pia mater by pressure and teasing it apart.

The drainage usually employed is horsehair or silkworm gut. Gauze rubber tubing and gutta percha tissue are used for infective cases.

Dr. A. E. Halstead discussed the technique of methods for exposing the spinal cord under the head of laminectomy, subperiosteal laminectomy, osteoplastic resection of the spine, etc.

In the cervical and lumbar regions, where the concavity of the spine is posterior, he thinks that laminectomy is the operation to be preferred. His reasons are:

1. Because posterior concavity of the spine does not permit muscles to drop into the defect made by removing the lamina; therefore, the muscles will not, when contracting, press upon the cord.

2. This operation is much simpler in technique.

3. The muscles are not injured to such an extent as in osteoplastic resection.

In the dorsal spine, in kyphosis, osteoplastic resection may have a place; but the objections to this operation are:

1. Difficulty in securing a symmetrical flap.

2. Permanent injury to the muscles in making U-shaped incision.

3. Danger of sloughing of the osteoplastic flap from inadequate blood supply.

4. In reflection of the flap the extent of exposure of the cord may be insufficient, necessitating extending the resection by removing more laminae by other means.

5. It is wholly unnecessary in most cases to restore the bony arch of the vertebra by osteoplastic methods. Degeneration of lamina is known to occur in a short time after subperiosteal resection.

#### THE PRESENT STATUS OF SURGERY FOR TUMORS AND LOCALIZED INFECTIONS OF THE BRAIN AND SPINAL CORD.

Dr. Archibald Church discussed the symptomatology and diagnosis.

Dr. John B. Murphy discussed the operative treatment and postoperative results.

Dr. Weller Van Hook followed with a short paper on "Closure of Cranial Defects."

Dr. M. L. Harris discussed the surgery of the trifacial nerve.

Dr. Edwin W. Ryerson reported (by invitation) six cases of nerve grafting for infantile paralysis. Four of these were available for presentation, one of the others having disappeared, and the sixth being too recent to be conclusive.

One case, of total paralysis of the external popliteal, showed a complete failure one year after the distal end of the external popliteal nerve had been sewed into a longitudinal slit in the internal popliteal.

One case of internal popliteal paralysis, involving the gastrocnemius, soleus and tibialis posticus, showed a considerable improvement in stability and position, the marked calcaneo-valgus being lessened, but no voluntary movements could be distinguished in the affected muscles.

One case of paralysis of gastrocnemius and soleus paralysis, treated by implantation of the small branches of the tibial nerve supplying these muscles into the external popliteal, showed improvement in position and stability, and a definite increase in size and apparent tone of the calf muscles, but no voluntary motion.

One case of paralysis of tibialis posticus, with only very slight power in gastrocnemius and soleus, treated by grafting internal popliteal into external popliteal, showed no improvement, and the previous slight functional ability in the gastrocnemius and soleus is destroyed.

These cases seem to show that the slit method of nerve-grafting is not likely to be successful, in spite of the successes reported by several observers, and it is Dr. Ryerson's opinion that it will be found advisable to slice upward a thin flap in the sound nerve, so that at least a partial end-to-end approximation can be made. The chief objection to this method is that the portion sliced upward may contain the fibers supplying some important muscles, since we have no means of differentiating the fibers. In the case of the internal popliteal, however, the anas-

tomosis could be made below the place where several of the gastrocnemius nerves are given off, and thus some of the danger might be avoided.

Dr. Julius Grinker:—I wish to discuss two or three points in diagnosis which are sufficiently important to require special emphasis. The first point is that generalized epileptic fits are not always to be classed as idiopathic epilepsy; on the contrary, they sometimes appear as an early sign of brain tumor. Most writers on brain tumors, and notably Oppenheim in his classic monograph, mention this point, but it is often overlooked. Quite recently I had under observation a case of brain tumor in which generalized epileptic convulsions constituted the only important symptom for a period of eight years. During the past year complete blindness due to secondary optic atrophy appeared and a left-sided hemiparesis slowly developed. Headaches have been present almost from the beginning, but were not continuous and seemed to have been provoked by alcoholic and other excess. A close interrogation of the patient brought out the statement that headaches have even antedated the epileptic fits. Tumor was overlooked, because the fits were considered of the idiopathic variety and the headaches were not brought into relation with other symptoms.

The second point to which I wish to direct attention is that the Jacksonian fit is not invariably a sign of gross brain disease, though it is a most valuable sign when it occurs in conjunction with other symptoms. Some time ago I recommended operation in a case of unilateral epilepsy which corresponded closely to the Jacksonian type and in which a probable diagnosis of brain tumor had been made. Careful exploration of an entire hemisphere proved the absence of neoplasm. Because of the extreme rarity of unilateral idiopathic epilepsy it is likely to be mistaken for focal brain disease.

In connection with the subject of brain injuries I wish to state that patients in a comatose condition are often sent to a general hospital with the diagnosis of uremia, or they are sent in as common "drunks." Each such case should be carefully examined, as it may prove to be a case of brain injury, notwithstanding the absence of external evidence of trauma. In this way we can save many lives. Recently I saw a case in the County Hospital, in which there were aphasia and localized fits in the right half of the face and in the right arm, appearing at intervals of a few minutes. I thought of subdural hemorrhage and recommended operation. The patient's life was thus saved.

Within the last few days I saw, in consultation, a patient who had been apaaic for six or seven days. The Babinski toe phenomenon could be readily demonstrated and there were seen localized twitchings beginning in the face and extending to the arm and leg of the right side. As the before mentioned symptoms appeared rather suddenly, the entire symptom-complex pointed to hemorrhage over the left cortex. I advised immediate operation which proved the diagnosis by the finding of an immense blood clot over the Rolandic area and Broca's convolution.

Dr. L. L. McArthur:—Dr. Halstead stated that new bone would be produced after subperiosteal restriction of the spinal vertebra. McEwen has demonstrated that only when the periosteum is inflamed do the osteoplastic cells exist in sufficient number to be capable of reproducing bone, and that normal periosteum makes a fibrous deposit only.

In regard to the filling in of defects with bone taken from the same patient, the impression ought not to go out that ossific union will not occur if the bone be replaced. Dr. Frank will recall having made a postmortem on a patient from whom a two-inch trephine button had been removed while searching unsuccessfully for a cerebral tumor. When the patient died, two years later, he found that this two-inch trephine button had healed in place perfectly.

In regard to the Abbe operation, I believe it is much better than that of ganglionic removal. I have three times resected the nerve intracranially after the method of Abbe, but instead of implanting the rubber dam I have used gutta serena tissue, thinking that that was what Abbe recommended. These patients have been without a recurrence of the pain for over three years.

There is another point that I am pleased was brought out again, because I feel that I was a pioneer in that line, having drained the lateral ventricles for hydrocephalus, but at a more superficial layer than is recommended by Ballance. Ten or twelve years ago, in my own practice, and in the case of some of Dr. Church's patients, I drained the ventricles with a tube, the flange of which rested under a large scalp flap instead of resting within the skull, for the purpose of letting the fluid out into the cellular tissues of the neck. It succeeded in relieving the convulsions and other symptoms. One case of hydrocephalus, occurring in a child 7 or 8 years of age, had a very large head, the size of which was not diminished by the operation, although the child was relieved and remained well for two or three years, when it died of summer diarrhea.

In another case of drainage beneath the scalp a peculiar thing happened. While I drained on one side only, that side of the head remained tense and grew. A closure of the opening between the two lateral ventricles was suspected.

Dr. Arthur Dean Bevan:—It is not so very many years ago that most of us were rather pessimistic about the surgery of the brain and cord. There has been enough advance made in this line of work and enough definite results have been obtained to warrant our being more optimistic than we were formerly. When you weigh all the evidence, the absolute hopelessness of brain tumor, on the one hand, and even the small possibility of good coming from operation, on the other hand, I think we must all urge operative interference more frequently, especially when we consider the splendid results, so far as relief is concerned, that can now be obtained from the decompression operation. Many of the old-time operations which were exploratory resulted in little good, but to-day, when the tumor can not be found, an enormous amount of comfort can often be given the patient and his eyesight maintained for months and years by a decompression operation.

One point impressed me very much, indeed; that was Dr. Murphy's remarks with regard to searching for a tumor with a sharp needle. I also have found that it is much better to use a blunt instrument like a grooved director. The different sense of resistance between ordinary brain tissue and tumor tissue will often enable one to locate the latter definitely.

With regard to laminectomy, I am very much opposed to the osteoplastic operation. I believe it is a dangerous one. It is not indicated very frequently, and the removal of bone with a saw or chisel is also a bad procedure. The simplest plan is to bite away the laminae with rongeur forceps. Anatomically, the laminae are of no value. It is simply a protecting wall for the cord, furnishing practically no support to the spinal column. It is simply the arch that is removed in a laminectomy, and quite a number of them can be removed without interfering with the integrity of the spinal column. Such a procedure is to be preferred to osteoplasty, because when you start in with the determination to operate at a certain point you frequently find that you must go up one or more vertebrae, which you can not do in osteoplasty as well as you can do with a simple incision.

Dr. Carl Wagner:—The point mentioned by Dr. Grinker, that every case of unconsciousness brought to the hospital without an accurate history should be considered from the standpoint of view of brain lesion, is worthy of note. This was brought to my attention ten years ago, when a patient whom I had in the hospital under observation with a fibroid of the uterus died suddenly. The interne said that it was uremia, the attack coming on without warning while the patient was walking about. It occurred to me that there must have been some brain trouble. I did a postmortem and found a tumor of the frontal lobe. I reported the case to this society and demonstrated the specimen at that time. There had been very few symptoms during the life of the patient, practically only a little headache, and yet the tumor, a gliosarcoma, was a large one.

Regarding the implantation of decalcified bone chips into the cranial defect, I want to call your attention to the very elaborate work done in Italy by the late Professor Sacchi, of Genoa, who said that it is not only useless to implant bone chips, because they are absorbed, but in many cases give rise to suppuration.



Dr. Jacob Frank (closing the discussion):—In 1887, when I was doing brain work, I said then that surgically the surgery of the head is all right, but that the postoperative results are all wrong. Most of the patients either die shortly after the operation, or they are relieved of their symptoms, but never again become useful members of society. The surgery of the brain stands to-day where it stood then. We must look for some means of mutilating the brain without leaving the patient in a state where he can not earn his living.

As to searching for tumors of the brain, I have looked for them and missed them, and I have seen other surgeons in Chicago do the same thing. I have come to this conclusion, that needles and trocars are of no value whatever in looking for tumor of the brain. If the neurologist says he has localized the tumor, it is much better and causes less disturbance to the brain to go in and open up the sulci with the finger or the end of a spoon. As a rule, they lie about half an inch from the surface of the cortex, and you can detect them much easier with the finger than with the needle. I agree with Dr. Bevan, that a needle in the brain is a dangerous instrument. It should not be used. I have made postmortems after needling the brain and found a number of small hemorrhages. The best thing is a special grooved director, with a blunt end, and a deep groove. If you have an abscess, the pus will run along the groove.

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#### MADISON COUNTY.

The regular quarterly meeting of the Madison County Medical Society was held Sept. 6, 1907, at the Lutheran Hospital at Granite City, Ill. The meeting was called to order at 2 o'clock by Dr. T. P. Yerkes, of Upper Alton. Those in attendance were Drs. T. P. Foulds, T. P. Yerkes, Waldo Fisher, R. S. Barnsback, G. Taphorn, A. F. E. Schierbaum, J. W. Scott, I. J. Baird, E. C. Ferguson, E. W. Fiegenbaum, Joseph Pogue, F. E. Tully, W. H. C. Smith, C. H. Zoller, O. J. Gwynn, Ralph Niedringhaus, R. W. Binney, R. B. Scott, A. J. Ihne, C. R. Kiser and Nina Polson Merritt. The visiting physicians were Drs. E. F. Baker, of Jacksonville, representative of the State Board of Health; F. O. Johnson, Nameoki; J. R. Sutter, Edwardsville; B. H. King, Granite City; L. G. Burroughs, Collinsville, and B. F. Jones, Venice. Other visitors were Rev. A. H. Almstedt and W. F. McNary, Granite City.

Dr. J. R. Sutter, of Edwardsville, made application for membership and was admitted by unanimous consent. Dr. W. H. C. Smith, of Godfrey, introduced the following resolution, which was adopted by the society after much favorable discussion:

"Be it and it is hereby resolved by the Madison County Medical Society that the influence of this society be exerted in favor of the establishment of a state colony for the care and treatment of epileptics, and that a copy of this resolution be sent to the properly constituted state authorities and a copy of the same be sent to the state medical society for similar action."

Dr. Waldo Fisher, of Alton, then read a very interesting paper on "Menorrhagia," which called out a great deal of discussion, and was followed by an address by Dr. E. F. Baker, of Jacksonville, on the general sanitary condition of the state, especially with reference to smallpox.

A vote of thanks was tendered to both of the above-named speakers for their able efforts. The members of the society extended a vote of thanks to the hospital association for its excellent treatment and hospitality. The meeting was one of the most successful of the year, and those who attended were benefited by the discussion.

E. W. FIEGENBAUM, Secretary.

Edwardsville, Ill., Sept. 9, 1907.

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#### MCLEAN COUNTY.

The September meeting of the McLean County Medical Society, which met in the City Hall on the evening of September 5, was called to order by President Godfrey.

Dr. A. L. Fox reported for the Judiciary Committee that said committee had chosen Mr. W. W. Whitmore as medicolegal attorney for the society; further, that Mr. Whitmore had accepted. Motion made that report of committee be approved; carried.

Dr. J. L. Yolton reported for the Board of Censors favorably on the names of Dr. Ora L. Thompson of Ellsworth, Dr. W. B. Wakefield of Heyworth, and Dr. Asa R. Freeman of Bloomington.

Dr. J. B. Taylor reported and showed diagrams for two cases: one of injury to eye by a nail, in which there was a hernia of iris. Operation. Function of organ was preserved.

The other, a case of pin in the larynx, located below and in the neighborhood of the tubercle of the epiglottis. Point sticking up into the tissues in such a manner as to be impossible to catch by forceps. Removed under anesthetic by breaking pin, which happened to be fragile, like a needle.

Dr. Guthrie reported a case of hernia with appendix in sac; also case of atrophy of gall bladder as result of stone in the cystic duct.

Dr. Howell reported a case of straw of whisk broom in the throat; a placenta prævia with calcareous degeneration of uterus, and a case of pernicious vomiting of pregnancy with death.

Dr. R. A. Noble referred to three cases of death from anesthetic in German clinics, in which a postmortem revealed an enlarged thymus gland.

Dr. E. L. Brown reported a case of metrorrhagia which yielded to thyroid extract.

Dr. Guthrie reported on the favorable results of Dr. C. H. Mayo in Graves' disease, from the removal of a part of the thyroid gland, care always being taken not to remove too much, rather reoperate if sufficient amount is not removed by first operation.

Dr. J. B. Taylor spoke of a case of incipient deafness in a girl of about 17 years who had noticed she was unable to hear the telephone distinctly through one ear. Occlusion of Eustachian tube was suspected. Finally the mouth was noticed to be drawn on one side. Case was referred to Dr. Billings, who diagnosed it as brain tumor. Case terminated fatally. Autopsy revealed a sacculated tumor under left lobe of cerebellum, containing substance like yolk of an egg. The brain was water-logged.

Dr. Godfrey reported three cases in which safety pins had been swallowed.

The above reports were brought out largely as the result of our quiz, which was an innovation for our society and which was heartily responded to and universally commended.

Bills to the amount of \$18.95 were read and approved.

Those present at the meeting were: Drs. Godfrey, J. B. Taylor, Carr, A. L. Fox, Lee Smith, Chapin, Williams, Brown, R. A. Noble, R. D. Fox, Howell, Guthrie, Sargent, Hull, Elder, J. L. Yolton, Vandervort, Sloan, Copenhagen and Rhodes.

Adjourned.

O. M. RHODES, Secretary.

### MORGAN COUNTY.

The Morgan County Medical Society held its regular meeting at the Library Aug. 8, 1907, at 8 p. m., President Dr. E. L. Crouch in the chair. Eleven members present.

Dr. Ogram was elected temporary secretary in absence of Dr. King.

Dr. Day proposed the name of Dr. Bradley to membership, which was laid over to be reported on at the next meeting.

Dr. Milligan reported a case of quinin poisoning in a child with severe symptoms, also spoke of two other cases.

Dr. Reid reported a case of rash from 2 gr. doses of iodid of potassium.

Dr. Crouch reported a case of urticaria from the use of quinin.

Dr. Bowe reported a case of disease of parotid gland due to infection, also a

case of bulbar paralysis and parotid gland infection. Both cases had infection from wearing false teeth.

Dr. Crouch spoke on parotid gland infection following erysipelas.

Dr. Day reported the case of Dr. Burkholder, who had umbilical hernia as seen July 22, which was reduced by hot applications, but afterwards returned, and fever followed and later the abdomen was opened and pus and fecal matter found in cavity and a perforation the size of a half-dollar in the bowel, which was attributed to tearing of some of the adhesions which had formed from former appendicitis, as it was situated in the cecum. The patient seemed to improve for a time, but later died from myocarditis or endocarditis.

Dr. Campbell read the paper of the evening on "Clean Obstetrics."

Dr. Reid thinks he has as good results in the patients' homes as in the hospital, as there are not so many septic germs in the home.

Dr. Thompson thinks cleanliness may be overdone.

Dr. Day says that the acid secretions of the vagina overcome the infectious germs often.

Dr. Bowe says that Nature is the best obstetrician and that most infection is due to doctors.

Dr. Bartlett thinks clots, membranes, etc., become decomposed and cause infection and urged that they be removed, if necessary, by the introduction of the hand into the uterus.

Dr. Bowe reports, on vacation or picnic trip of physicians and families, that the expense is too great for our society to go to the river and secure a steamer.

A. J. OGRAM, Secretary Pro Tem.

#### ROCK ISLAND COUNTY.

The usual August meeting of the Rock Island County Medical Society was held at Black Hawk's Watch Tower Tuesday, August 13, at 6:30 p. m. After supper, in the absence of the president and vice-president, Dr. Eyster was elected to act as temporary chairman. The minutes of the June meeting having been read and approved, the names of Dr. C. F. Freytag, of Rock Island, and Dr. A. S. Goldstone, of East Moline, were proposed for membership. A letter was read from Dr. G. E. Baxter, assistant editor of the ILLINOIS MEDICAL JOURNAL, in regard to a continuous advertising directory in that paper of the hospital and sanatoria in the State of Illinois. It was moved and carried that a committee of three be appointed to draw up resolutions in regard to the establishment of state sanatoria for the tuberculous. The Chair appointed Dr. Sala, Dr. Eddy and Dr. R. C. J. Meyers. The scientific program then followed: Tuberculosis of Childhood, Dr. Gardner. The discussion was opened by Dr. Banning, a visitor from Davenport, followed by Drs. Eyster, Sala, R. C. J. Meyers and Ostrom. Dr. Ostrom read a paper on the Diseases of the Tongue, which proved very interesting. The anatomy of the tongue, accidents that befall it, cysts, tumors, foreign bodies and abscesses were all considered. Specimens of sialoliths were shown. The society then adjourned. Members present: Drs. Eyster, Sala, Dart, Wriggins, Eddy, Hollowbush, Johnson, Martin, Asay, Gardner, Morgan, Williams, R. C. J. Meyer, Ostrom, Rochow, Yontz, Browning, and Snively. Visitors: Dr. Banning of Davenport, and Dr. Goldstone, of East Moline.

#### VERMILION COUNTY.

The Vermilion County Medical Society held its regular meeting at Danville, Ill., September 9, and it was called to order by the vice-president, C. E. Wilkinson, at 8:30 p. m. Programme: Anatomy and Physiology of the Heart, with Fetal Circulation, Dr. F. W. Barton, Danville. Clinical Demonstrations of Pathological Heart Sounds, Dr. C. E. Wilkinson, Danville. Latest Opinions as to the Effect of Digitalis on the Heart Functions, J. B. Morton, Ridgefarm. Dr. Barton's paper was a concise review of the subject and the balance of the programme

was unavoidably interfered with. Dr. E. E. Clark partly filled in the vacancy with a short paper on The Falsetto or Eunucoid Voice. Some interesting case reports on puerperal infection created an interesting discussion.

E. E. CLARK, Secretary.

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#### WHITESIDE COUNTY.

The regular bimonthly meeting of the Whiteside County Medical Society was held at Morrison, Ill., Aug. 7, 1907, at 1 o'clock p. m. The following program was given: Etiology, Bacteriology and Pathology of Cerebrospinal Meningitis, Dr. Durkee, Fulton; Symptoms and Diagnosis of Cerebrospinal Meningitis, Dr. Fitzgerald, Morrison; Complications and Treatment of Cerebrospinal Meningitis, Dr. Nowlin, Morrison. The subject was discussed very fully by all present. The meetings of the past year here have been growing in interest and attendance. Next meeting at Sterling Oct. 2, 1907, when a symposium on Summer Diarrheas will be given.



## NEWS OF THE STATE.

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A case of smallpox is reported from Kankakee.

A number of cases of typhoid fever are reported in Decatur.

Dr. Joseph B. DeLee, of Chicago, has returned from Europe.

Dr. Arthur D. Bevan, of Chicago, has returned from Europe.

Dr. and Mrs. Frank Allport, Chicago, have returned from Europe.

Dr. and Mrs. Julien E. Hequembourg have returned from Rye Beach.

Dr. John W. Hairgrove, Jacksonville, is reported to be ill in Chicago.

Diphtheria is reported in St. Anne, where three cases have appeared.

Dr. and Mrs. Philip Kreissl, of Chicago, have returned from Europe.

Dr. Edward V. L. Brown, of Chicago, sailed for Europe in September.

Dr. and Mrs. Daniel N. Eisendrath, of Chicago, have returned from Europe.

Dr. and Mrs. George E. Fosberg, Chicago, spent September in Atlantic City.

Dr. Ernst B. M. Mammen and family, Bloomington, Ill., are visiting in London.

Dr. Ora D. Holland and family, Streator, sailed for Europe September 11.

Dr. and Mrs. John B. Murphy, of Chicago, have returned from Yellowstone Park.

Dr. John Edward Rhodes, of Chicago, has returned from North Manitou Island.

The first meeting of the Chicago Ophthalmological Society will be held October 14.

Dr. and Mrs. Archibald Church, of Chicago, are spending September in the Adirondaeks.

Dr. T. M. McMichael, Monmouth, who has been ill with erysipelas, is reported to be better.

Dr. and Mrs. Frederick Gillette Harris, of Chicago, will remain abroad until January.

Dr. Charles V. Moorhouse, Marietta, recently suffered severe injury by a kick from a horse.

Dr. James M. Tinsley, Philo, sailed from Liverpool, August 15, on his return from Europe.

Dr. J. H. Butler, Hartsburg, is ill at the Deaconess Hospital, Lincoln, with appendicitis.

Drs. Aroid E. Kohler, Moline, and Carl O. Bernhardt, Rock Island, left for Mexico September 2.

Mayor Roy R. Reece, of Springfield, has issued a general order calling upon the citizens to clean up.

Dr. Edward W. Fiegenbaum, Edwardsville, was seriously injured in the left leg in a fall August 20.

Dr. Maric A. Fellows suffered severe internal injuries in a collision between street cars September 5.

Dr. and Mrs. R. M. Charles Ball, Monmouth, have returned after a summer spent on the Pacific coast.

Dr. Weller Van Hook, of Chicago, was recently elected general secretary and treasurer of the Theosophists.

Dr. C. E. Betz, St. Joseph, was operated on for pleurisy with effusion at Burnham Hospital, Champaign, August 15.

Dr. Stanley Thomas, of Chicago, has been appointed assistant at the Minnesota State Hospital for Insane, St. Peter.

Dr. John Segsworth, Wilmette, who was badly injured some weeks ago by being thrown from his buggy, has recovered.

Dr. F. B. Clark, Elgin, has been appointed assistant physician at the Illinois Western Hospital for the Insane, Watertown.

Dr. Samuel A. Graham, chief of staff of the Eastern Illinois Hospital for the Insane, has resigned and will enter practice at his home in Clinton.

Dr. Ernest W. Potthoff, Oak Park, dislocated his neck by a fall when hurrying to make a professional call September 6, and is at the Oak Park Hospital.

Dr. Arthur E. Prince, Springfield, has purchased property in Bloomington at the cost of \$35,000, on which he will erect a building for a sanitarium.

Dr. James W. Pettit, Ottawa, has been appointed delegate from Illinois to the International Congress on Tuberculosis, to be held in Washington in 1908.

Dr. Joseph R. Waldmeyer, of Chicago, was attacked by a delirious patient August 18 and received a number of scalp wounds and a fracture of the left arm.

Dr. Omas A. Kell has been appointed chief of the medical staff of the Illinois Eastern Hospital for the Insane, Hospital, vice Dr. Samuel A. Graham, resigned.

Dr. Elvin F. Baker, Jacksonville, inspector of the State Board of Health, discovered five cases of smallpox in Kilbourne and ordered a quarantine established.

Dr. Haim L. Davis, superintendent of the Detention Hospital, Cook County, is visiting eastern cities to inspect the methods employed in the care of insane in incipient stages.

Dr. Joseph C. Dodds, Champaign, has been appointed district surgeon for the Illinois Central Railroad between Gilman and Effingham, vice Dr. Henry E. Cushing, deceased.

Announcement has been made of the approaching marriage of Dr. Howard L. Metcalf to Miss Elesa Regina Mueller, both of Springfield, to be solemnized the latter part of October.

Dr. Joseph DeSilva, Rock Island, recently appointed a member of the board of trustees for the Illinois Institution for the Feeble-minded, Lincoln, has been selected president of the board.

Dr. W. G. Bain, bacteriologist of the state board water survey department at the University of Illinois, Champaign, has accepted the directorship of the laboratories of the State Board of Health.

Dr. Eugene Cohn, a member of the staff of the Illinois Eastern Hospital for the Insane, has resigned to become assistant superintendent of the Illinois Southern Hospital for the Insane, Anna.

Dr. G. H. Miechal Company, Cleveland, Ohio, have recently issued a unique, reliable and most valuable anatomical chart, which is of value for quick and ready reference, for students and physicians.

Dr. Robert B. Hough, who has been assistant physician at the Asylum for Feeble-minded Children, Lincoln, has gone to Elgin as first assistant physician in the Illinois Northern Hospital for the Insane.

At a farewell reception given to Dr. Samuel A. Graham, retiring assistant superintendent of the Illinois Eastern Hospital for the Insane, September 2, he was presented with a carving set and smoking jar.

Derma Viva Company, Chicago, has been incorporated; capital, \$10,000; manufacturing and dealing in toilet articles and medicines; incorporators, Charles F. Paul, Edmond O. Hanson, Robert Humphrey.

Dr. T. H. D. Griffith, Cairo, has resigned from the United States Public Health and Marine-Hospital Service to accept a position as medical inspector and assistant secretary in the State Board of Health, Springfield.

The outbreak of scarlet fever in South Chicago has been kept under control by the active cooperation of the department of health and the police department, with the aid of the doctors and priests in that section of the city.

The Department of Health says that the territory surrounding the steel plant of South Chicago is now the storm center of disease. During the first six days of September six cases of scarlet fever and one case of diphtheria were reported from this district.

Dr. Channing W. Barrett, of Chicago, requests the announcement made that the appearance of his name in the catalogue of the Jenner Medical College in connection with the chair of gynecology is an error and that it was inserted without his knowledge or consent.

The Board of Review of Chicago has announced assessments against hospitals in Chicago amounting to more than \$2,000,000, the tax on which will be approximately \$27,000. The assessment followed the recent decision that the hospitals come within the scope of the law.

Dr. Aria Louis Derdiger has returned to Chicago from a prolonged stay in the East, where he has taken special work in the Postgraduate School in New York on diseases of the eye, ear, nose and throat, and has also visited the principal hospitals in that city and Philadelphia.

Dr. Charles E. Crawford, Rockford, inspector of the State Board of Health, found ten cases of smallpox in Coal Valley and placed the in-

fectured houses under quarantine. The disease is said to have existed in Coal Valley for two months, but had been diagnosed as chickenpox.

Owing to the large number of cases of smallpox at Winslow, Ill., and failure of the authorities adequately to enforce the quarantine regulations, the secretary of the State Board of Health has directed Dr. C. E. Crawford, inspector of the board, to see that quarantine is maintained.

The Health Commissioner of Chicago, it is reported, desires to transform the Isolation Hospital into a hospital where diphtheria, scarlet fever and other contagious diseases may be treated, and to build a new hospital for smallpox at a cost of \$25,000 to accommodate 240 patients.

Dr. E. F. Baker, inspector of the State Board of Health, has visited Aurora and investigated the fifteen cases of smallpox now in quarantine. The State Board of Health is taking a firm stand in the controversy between the health authorities and citizens of Aurora regarding the necessity of vaccinating school children.

At a meeting, held September 8, of the Founders' Club of the New People's Hospital Association, Chicago, which is undertaking the erection of a new hospital at Archer avenue and Twenty-second street, several hundred dollars were subscribed by the members. About \$35,000 is necessary to complete the building.

The work on the George W. Smith memorial addition to the St. Luke's Hospital of Chicago was commenced August 19. The new structure is to be devoted to paying patients, and the income from this to the charity wards of the hospital. The building will be six stories in height and will contain accommodations for 112 patients.

At the annual commencement exercises of the Illinois Medical College, Chicago, held August 29, a class of nine was graduated. The doctorate address was delivered by Bishop Fallows, who quoted on "Relation of Religious and Medical Science," and the degrees were conferred by Heman H. Brown, M.D., president of the college.

The Health Commissioner of Chicago took drastic measures on August 8 in his endeavor to prevent the spreading of contagious diseases of children, when he revoked the license of C. Bacigalupo, an undertaker, for violation of the burial ordinance in officiating at a public funeral of a child who had died from measles in a public institute.

A new hospital is projected in Chicago to be erected at Twenty-second street and Archer avenue and to be known as the People's Hospital. A rally in behalf of the hospital was held the last Sunday in August, when addresses were delivered by M. B. Madden, E. J. Magerstadt, Charles Lederer, Simon P. Gary, Charles M. Foell and others.

At a meeting of the Madison County Medical Society, held in Granite City September 6, resolutions were adopted that the influence of the society be exerted in favor of the establishment of a state colony for the care and treatment of epileptics, and that a copy of the resolution be sent to the state authorities and a copy to the state medical society for similar action.



By the will of Henry L. Barney, who recently died, the following bequests were made to Chicago institutions: Visiting Nurses' Association, \$20,000; Chicago Lying-in Hospital, \$10,000; Hospital for Destitute and Crippled Children, \$5,000; Chicago Home for Incurables, \$5,000; Chicago *Daily News* Fresh Air Fund, \$10,000, and Chicago Tuberculosis Institute, \$10,000.

The employés of the Postoffice Department in Chicago, in view of the prevalence of consumption among their number, have under serious consideration a plan for the sanitary care of tuberculosis patients belonging to that organization. The plan of sending postoffice clerks afflicted with the white plague to a sanitarium devoted to the special treatment of the disease at Alamagordo, N. M., at the expense of the sick benefit fund, was approved.

The Chicago Isolation Hospital was closed on August 20 because of the lack of patients. Since December 20, seventy-four smallpox patients have been under treatment at the hospital. The largest number registered was on March 20, when twenty patients were in the hospital. Not one of the attending physicians nor one of the thousands of visitors nor one of the 2,000 medical students who visited the hospital contracted the disease.

The Chicago Department of Health has issued a warning against typhoid fever, as during the first sixteen days of August thirty-three cases were reported and thirty-one deaths. This is the highest death rate from the disease since 1903. Typhoid may be expected during the remainder of August and all of September. On the conservative estimate that there are ten cases in the city for every death reported, there are more than 300 cases.

During August the mortality in Chicago showed 2,783 deaths, 566 more than the preceding month and 296 more than for the corresponding month of 1906, the respective annual death rates per 1,000 being 15.55, 12.29 and 14.33. The deaths from acute intestinal diseases far outnumbered all others, with 796; then followed consumption, with 222; violence (including suicide), with 199; pneumonia, with 186; heart disease, with 180, and nephritis, with 169.

At a meeting of women in Aurora, August 28, in opposition to the order for compulsory vaccination of children before entering school, Dr. Heman Spalding, of Chicago, made a strong argument in favor of vaccination, which was ill received by the assembly. As a result of the meeting a committee was appointed to draw up resolutions instructing the city council to order the president of the board of health to rescind his order of compulsory vaccination.

The medical department of the John Crerar Library, Chicago, has been moved from the Newberry Library and installed in its new quarters. Gen. Alfred C. Girard, the librarian, announces that the reference library is open as usual to practitioners. The collection now consists of about 41,000 volumes, and 389 medical periodicals are regularly received. The new location of the library is on the sixth floor of the Marshall Field Building, adjoining the reading room.

The ninth annual conference of the American Hospital Association, consisting of leading hospital workers, both physicians and laymen, in the United States and Canada, was held at the Palmer House, Chicago, September 17 to 21, under the presidency of Dr. Renwick Ross, of the Buffalo (N. Y.) General Hospital. Dr. George W. Webster, president of the Illinois State Board of Health, delivered the address of welcome. The annual banquet was held September 18 at the Palmer House.

The Department of Health has divided the city of Chicago into eleven general districts for medical inspection of schools. Each has nine subdivisions. Each district is in charge of a medical inspector. Every district medical inspector will direct the work of nine school medical inspectors and will be held responsible for the health of their district. The school medical inspectors will visit every school in the city every school day in the year, and will, in addition, do all things calculated to safeguard the health of the pupils and of the families. The vaccination of school children will not begin until after October 15.

A new shack, accommodating ten additional women patients, has just been completed at the Edward Sanatorium, Naperville, Ill. This institution for the treatment of early cases of pulmonary tuberculosis was created a year ago by Mrs. Edward L. Gaylord as a memorial to her husband. Recently Mrs. Gaylord gave the entire plant with forty acres of land to the Chicago Tuberculosis Institute. The total capacity is twenty-six patients. There are ten free beds; other patients are treated at \$10.00 per week, slightly under the present per capita cost. Application for admission should be made to Dr. Theodore B. Sachs, 287 West Twelfth Street.

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### BOOK NOTICE.

Human Anatomy, Including Structure and Development, and Practical Considerations, by Thomas Dwight, M.D., LL.D., Parkman Professor of Anatomy in Harvard University; J. Playfair McMurrich, Ph.D., Professor of Anatomy in the University of Michigan; Carl A. Hamann, M.D., Professor of Anatomy in Western Reserve University; George A. Piersol, M.D., Sc.D., Professor of Anatomy in the University of Pennsylvania, and J. William White, M.D., Ph.D., LL.D.; John Rhea Barton, Professor of Surgery in the University of Pennsylvania, with Seventeen Hundred and Thirty-four Illustrations, of which Fifteen Hundred and Twenty-two are Original and Largely from Dissections by John C. Heisler, M.D., Professor of Anatomy in the Medico-Chirurgical College, and edited by George A. Piersol, Philadelphia and London. J. P. Lippincott & Co., 1907.

This beautiful work of nearly 2,100 pages, the product nearly altogether of American anatomists and engravers, is deserving of serious consideration by medical men and students of the present day. In many respects it surpasses the Anatomy of Graves and other European textbooks which have been so much in vogue in America in past years. Adequate consideration of the parts of the anatomy has been insured by the

cooperation of Dr. J. William White, whose ripe experience both as a surgeon and a teacher of surgery has enabled him to point out with unusual force the relations of anatomy to the requirements of the practitioner, and to associate for the benefit of the student, anatomical facts with those conditions resulting from injury or disease that these facts elucidate.

We can recommend the work to the favorable consideration of our readers.

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#### MARRIAGES.

OLIVER J. ROSKOTEN, M.D., to Miss Olga Beseman, both of Peoria, Ill.

WILLIAM RIGHTMAN, M.D., to Miss Toba Fagin, both of Chicago, August 6.

HARRY R. FOLCKEMER, M.D., to Miss Nell E. Byers, of Dallas City, Ill., August 22.

OTTO BALENSIEFER, M.D., Peru, Ill., to Miss Helen Wilkins, of Chicago, August 31.

GEORGE ALBERT GARDNER, M.D., to Miss Charlotte Thayer, both of Chicago, August 14.

EMANUEL ELY SHELLY, M.D., to Miss Ida Olive Brubaker, both of Freeport, Ill., August 20.

STANLEY R. PERKINS, M.D., Mishawaka, Ind., to Miss Cora Atta Hill, of Chicago, September 4.

JOHN DONNINGTON BARTLETT, M.D., Chicago, to Miss Ethel Booker, Helena, Montana, September 4.

WALTER H. ALLYN, M.D., Waverly, Ill., to Miss Helen McMillan Hawley, of Chicago, Ill., August 1.

WALTER WELLMAN GRAVES, M.D., LaSalle, Ill., to Miss Clara Belle Cavell, of Mendota, Ill., September 4.

WILLIAM H. DOOLITTLE, M.D., Woodstock, Ill., to Miss Mary J. McNair, of Winnebago, Ill., in Chicago August 15.

WILLIAM R. FRINGER, M.D., to Miss Alma M. Barter, both of Rockford, Ill., at Grand Cascapadia, Quebec, August 20.

FRANCIS LEBARON JENNEY, M.D., Chicago, to Mrs. Winifred Ament-Morgen, of Indianapolis, Ind., in Chicago, August 21.

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#### DEATHS.

WILLIAM H. BENTLEY, M.D., a Confederate veteran, died at his home in Marion, Ill., August 22.

ROBERT H. WESTFELD, M.D., Beaumont Hospital Medical College, St. Louis, 1888, died at his home in Chicago, August 19, aged 55.

JOSEPH T. PACE, M.D., Ohio Medical University, Columbus, 1878, died at his home in Carlyle, Ill., August 17, after a lingering illness,

from injuries received two years before from a fall down an elevator shaft, aged 62.

AMASA E. FIELD, M.D., Rush Medical College, Chicago, 1895, a member of the Illinois State and DuPage County Medical societies, died at his home in Warrenville, Ill., August 23, from tuberculosis, after an illness of more than two years, aged 48.

CHARLES W. SLY, M.D., Beaumont Hospital Medical College, St. Louis, 1892; Physio-Medical Institute, Chicago, 1888; a member of the Illinois State and Woodford County Medical societies, died suddenly at his home in Benson, Ill., August 16, from heart disease, aged 44.

CHRISTIAN E. BURKEHOLDER, M.D., Rush Medical College, Chicago, 1899, of Jacksonville, Ill., a member of the Illinois State and Morgan County Medical societies, died at Our Savior's Hospital, Jacksonville, July 28, two days after an operation for strangulated umbilical hernia, aged 31.

SAMUEL BANE, M.D., Northwestern University Medical School, Chicago, 1897, a member of the American Medical Association and one of the most promising young practitioners of Peoria, Ill., died at his home in that city in September from intestinal paralysis following typhoid fever, after an illness of two weeks, aged 36.

EDWARD W. LEE, M.D., L.R.C.P., Ireland, Dublin, 1862, a member of the Illinois State and Cook County and Chicago Medical societies, for many years a well-known surgeon of Chicago and for twenty years chief surgeon of the Pennsylvania lines west of Pittsburg, and attending surgeon of the Cook County Hospital and other institutions, died at his home in Chicago, August 11, aged 67.

JOHN NORMAN DIXON, M.D., College of Medicine and Surgery, Cincinnati, Ohio, 1873, of Springfield, Ill., died in St. Louis Sept. 8, 1907, after a short illness, aged 53. Soon after his graduation Dr. Dixon located in Springfield and entered into partnership with Dr. Rufus Lord. He remained in practice in Springfield until his death, a period of more than thirty years. He was connected with the Springfield Hospital and Training School, and at one time chief surgeon of the C., P. & St. L. Railroad and local surgeon of the Ohio & Mississippi, Chicago & Alton and Illinois Central railroads, and a member of the county and state medical societies and of the American Medical Association.

At a meeting of the Sangamon County Medical Society, held September 9, the society adjourned out of respect to the memory of Dr. Dixon and appointed a committee to prepare resolutions on his death, and the society resolved to attend his funeral.



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## ORIGINAL ARTICLES

### THE STUDY OF A CASE OF PUERPERAL INFECTION, WITH SPECIAL REFERENCE TO ITS ETIOLOGY.\*

ROBERT T. GILLMORE, M.D.

CHICAGO.

Statistics continue to furnish evidence against those who make a routine practice of giving douches during labor and the puerperium. Prophylaxis is the highest art of medicine, and it is our duty to report any circumstances that might further its advancement.

The following case presents several noteworthy features. First of all, the writer endeavored to scrupulously carry out all the details of surgical cleanliness. He had the hearty cooperation of the patient and her husband in the aseptic precautions to be used at the time of delivery. A trained nurse of excellent reputation was engaged for the case. It so happened that there was no antepartum vaginal examination. The labor was normal, and the child, the placenta and its membranes were normally delivered. Puerperal infection developed, and the preponderance of evidence against the douches which were given her as being responsible for the infection is of sufficient weight to deserve attention being called to them.

*History.*—Mrs. A., nullipara, 32 years of age, consulted me after she had passed three menstrual periods. A pelvic examination was made and pregnancy was diagnosed. At this time, and periodically throughout her pregnancy, her urine was examined with negative findings.

A week before her expected confinement a head presentation was detected by abdominal palpation and auscultation. A week later, Feb. 7, 1904, she was delivered of an eight-pound, healthy boy. The complete placenta followed in less than half an hour. The only break in the membrane was where the infant passed through. There was no laceration of the perineum.

On the sixth day after the confinement the patient complained of uncleanness and itching in the region of the vulva. There was a perceptible odor to the discharge. The obstetrician ordered a vaginal douche, consisting of a quart of sterilized normal salt solution, to be given with low pressure and with strict

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\* Read before the Fifty-seventh Annual Session of the Illinois State Medical Society, May 21-23, 1907.

regard to aseptic technic. On the seventh day the knee and chest position was ordered to be taken daily. The patient was seemingly making an uneventful recovery.

On the tenth day the obstetrician made what he supposed would be his final visit. Morning temperature, 98.3; pulse, 60. In the latter part of the evening she complained of pain in the right gluteal region, radiating down the thigh. Without orders, the nurse massaged the limb freely and applied the hot water bag. The patient passed a sleepless, restless night.

On the eleventh day, at 7 a. m., the patient's temperature was 103, pulse 98. At 4 p. m. of the same day the temperature was 104, pulse 100. She was chilly and nauseated.

Thirteen days after labor, at 11 a. m., the temperature was 104, pulse 110, and remained practically stationary all day. A pelvic examination was made with negative findings. The uterus, considering the day of puerperium, was normal in size and mobility. There was positively no abdominal nor vaginal tenderness on conjoined examination. The writer catheterized the patient, while making the examination, for complete analysis. A specimen of the discharge was taken from the external os and from the interior of the uterus for bacteriological examination. Dr. Joseph Biehn, city bacteriologist, was called in consultation to make a blood examination.

Following are his reports:

Erythrocytes, 3,723,000, mostly normocytes. Leucocytes, 41,000; neutrophils, 98 per cent.; lymphocytes, 2 per cent.; hemoglobin, 69 per cent.; animal parasites, none.

Culture from interior of uterus showed many streptococci in short chains.

Culture from external os, streptococci; few bacilli; mixed infection.

#### URINALYSIS.

Reaction acid; specific gravity, 1031; chlorids and phosphates, normal; peptones, sugar, blood, bile, none; indican, trace; uric acid decreased; urea, 3 per cent.; albumin present.

Microscopical.—Casts, epithelial and granular, few; urate crystals; blood; few erythrocytes; pus, many leucocytes.

On the fourteenth day, at 5:30 a. m., the patient had a violent chill, followed by a temperature of 105.3, pulse 110. The lowest temperature during the day was 103.3, which was accompanied by profuse perspiration. She complained of creepy sensations, her abdomen was tympanitic and she complained of the distension, her entire body ached. Sleep was obtained in short fretful naps, and she awakened panic stricken and extremely apprehensive. For the next four days the patient suffered a severe chill on an average of twice during the twenty-four hours, temperature bounding to 105 and varying from that to 104 during the entire time and in spite of almost continual cold sponging.

From the fourteenth day to the close of the eighteenth the patient obtained only thirteen and one-half hours' sleep, an average of two hours and twelve minutes to every twenty-four.

On the twenty-fifth day the patient complained of sharp, shooting pains in the pelvic region. She had a dry, hacking cough for a few hours; her pulse, which had averaged 85, and her temperature, 99 degrees, for the past six days, rose to 103.6, pulse 110. She complained of severe pain in the right ovarian region, midway over Poupert's ligament, and accompanied by exquisite tenderness radiating down the entire thigh. Both limbs were measured and phlegmasia alba dolens diagnosed in the right.

On the twenty-ninth day there was a slight rise in temperature, respiration and pulse, accompanied by a sharp cough. Pleurisy developed on the left side of the thorax. There was a marked heart murmur. Both labia vulvæ were swollen to several times their normal size. She had intense pain in her left limb and brilliant hectic spots in both cheeks. Measurements were taken, and phlegmasia alba dolens was diagnosed as developing in the left leg.

## TREATMENT.

In the absence of any localized pelvic pathology, radical treatment was not considered. The streptococic serum was administered every four hours for several days without any apparent result. This, of course, would be no argument against the opsonic theory, as theoretically the serum from the individual strain must be used to be effective. Medical treatment was given to meet the symptoms that presented themselves, and in the main was supportive.

## CONVALESCENT PERIOD.

Beginning with the fortieth day the patient began to make a gradual improvement, and on the seventy-fourth day the physician was discharged from the case. The swelling of the legs at this time still caused her considerable annoyance. At the present writing, two years and more after the patient's confinement, she has entirely regained her former health.

## ETIOLOGY OF PUERPERAL FEVER.

1, Predisposing cause; 2, pathogenic micro-organism introduced by improper technic.

*Predisposing Causes.*—1. Traumatism of the utero-vaginal tract which facilitate the invasion of infectious germs.

2. The general exhaustion of the patient during labor, which lowers the resistance of the tissues. Infections are proportionately greater as the labor exceeds twenty-four hours.

3. Leaving remnants of the placenta or membranes, which often decompose in the utero-vaginal tract, and thus favor the invasion and increase the activity of micro-organisms.

4. The lack of general sanitary surroundings, or any appreciable condition which would have a tendency to lower the patient's vitality.

5. Constitutional diseases.

*Improper Technic.*—1. Lack of surgical cleanliness on the part of the obstetrician either before, during or after labor, while making a vaginal examination without properly cleansing his hands, the field of operation, the patient's external genitals, or by the use of unclean instruments. These are probably the most potent factors in puerperal infections.

2. Lack of cleanliness on the part of the patient, which would include coitus a few days or hours previous to confinement, self-administered vaginal douches, personal vaginal examinations, and a tub bath with the onset of labor.

3. Lack of surgical cleanliness on the part of the nurse.

4. The promiscuous and careless use of douches, including extremes in temperature and strong antiseptics.

The objections to the douche are many.

(a) It is comparatively seldom that an unused and freshly sterilized douche bag is obtained for the confinement. The dangers of employing a bag which has done service for some months, perhaps used by one or more members of the family for the administration of an enema, and where, as is frequently the case, the end of the tube has come in contact with the seat or bowl of the toilet, the opportunity for the syringe tip to become the medium of introducing infection into the freshly bruised or abraded vaginal mucosa is self-evident.

(b) The vulva, anus and adjacent areas are especially exposed to the presence of the pathogenic bacteria found in the feces, and unless special care is taken the sterilized douche point may carry with it bacteria into the parturient canal.

(c) Granting the douche point is properly sterilized and the external parts adjacent to the vaginal opening properly cleansed, we are then at the mercy of a careless nurse or of an attendant who may not be well trained in surgical cleanliness, or who, being qualified, finds it extremely difficult, if not impossible, to carry out an aseptic technic.

(d) Nature furnished the patient with utero-vaginal secretions which do not favor the growth of pathogenic micro-organisms, and we certainly weaken the reaction of these secretions when we dilute them with the douche water. Extreme heat, cold or strong antiseptics diminish the resistance of the already impaired tissues.

The eminent authorities who still advocate the douche and the country practitioners who are able to report the numerous confinements they have attended without the assistance of trained nurses, often ignoring every rule of asepsis without a single complication of infection, are both unconsciously guilty of retarding the development of prophylaxis in puerperal infection. On the one hand, we have a specialist in obstetrics who is in a position to demand an able corps of assistants and who practices his art with strict regard to asepsis. On the other, we are dealing with a man who can with impunity slight these precautions because the germs of infection perhaps do not exist, or at least are not prevalent, in his locality. It stands to reason, then, that both of these men could use the douche during and after labor, with more or less impunity.

#### THE PROBABLE CAUSE OF THE INFECTION.

This paper would be incomplete without an endeavor to determine the medium of infection in the specific case reported. There is no evidence of an autoinfection. In considering the predisposing causes, we will first consider traumatism of the utero-vaginal tract.

1. The writer could detect no traumatism of the vagina or of the perineum.

2. The general exhaustion of the patient during labor. The patient's labor was ideal, the entire time being something under a fraction of eighteen hours.

3. The remains of the placenta or membranes. The placenta was carefully examined and found to be intact. There was no break in the membranes, except where the infant had passed through.

4. The lack of general sanitary surroundings, etc. The sanitary surroundings could not have been improved upon. It so happened that the patient was the first tenant to occupy a new apartment. It was newly furnished, including bed linen, blankets, nightgowns, etc., which were saved newly clean for this special occasion. A few days before her expected confinement the maternity room was chosen, thoroughly cleaned and deprived of accessories.

*Imperfect Technic.*—Lack of surgical cleanliness on the part of the obstetrician. Labor began at 2 o'clock in the morning, and the writer



was not called until 7. He took a tub bath and changed his clothes throughout. When he made his first call he confirmed his previous diagnosis of head presentation by abdominal examination. His second call was made at 6 o'clock in the evening of the same day. Before entering his patient's room he took a tub bath at her house and made his second change of underclothes for the day, including a complete sterilized obstetrical suit. Inspection showed a slight bulging of the perineum, and the patient was at once provided with sterilized leggings, sheets, towels, etc. The pubic hair had been shaved in the early morning hours by the nurse. The writer personally cleansed the vulva, and after properly scrubbing his hands put on a new pair of rubber gloves which had been boiled for twenty minutes. No antepartum digital examination per vagina was made either upon the first or second parturient visit. Within eighteen hours after the first labor pain the patient delivered herself of an eight-pound, healthy boy. The rubber gloves were again boiled, the obstetrician's hands scrubbed with a new freshly sterilized hand brush, and an examination was made of the perineal floor and vaginal tract for traumatism. No lacerations were detected, and the writer personally cleansed the vulva and applied the sterilized obstetrical pad.

A few days preceding, the writer had attended a complicated obstetrical case in which there was a severe laceration, and an abdominal section done within thirty-six hours after the confinement above reported were in neither instance complicated by a rise of temperature. This would weigh against the obstetrician himself being a carrier of infection at this particular time.

A Rochester sterilizer was used for the preparation of his obstetrical outfit at the time of the patient's delivery. After the development of puerperal fever this sterilizer was sent to Dr. Joseph Biehn, city bacteriologist, with a request that he make a thorough test of its efficacy. A sheet, containing a culture of streptococci and other infectious germs, was placed in the sterilizer and after one-half hour of sterilization all germs were found to be inert. It so happened in this case that the obstetrician had made a bi-sterilization of his outfit, each three-quarters of an hour in duration.

*The Promiscuous Use of the Douche.*—On the sixth day after the patient's confinement a sterilized normal saline douche of medium temperature was ordered by the writer to be given at low pressure and with due regard to surgical cleanliness.

*Lack of Cleanliness on the Part of the Patient.*—A week before the patient was confined the writer instructed her in the danger of making or allowing her nurse to make, a digital examination in the vagina. She was also informed of the dangers attending the administration of vaginal douches immediately before or during labor. She was told not to take a tub bath after labor began. There had been no coitus for several months preceding her confinement. She did not make a digital examination upon herself *per vaginam*. She had not taken a douche for several weeks previous to her confinement or during her labor. She did not take a tub bath after labor had begun.

*Lack of Surgical Cleanliness on the Part of the Nurse.*—On the twelfth day of the patient's confinement the physician was informed by the patient's husband that the nurse, being a strong advocate of the douche, had administered antiseptic douches: lysol, alternating with permanganate of potash, twice daily since the order for the saline douche had been given. During the third week of his patient's illness the writer ordered a high enema. The nurse, having no colon tube at hand, inserted the rubber tube of the syringe some two feet into the bowel. On questioning the nurse, she freely acknowledged using the tube proper for an enema throughout her service on the case, but she explained that after she had done so she had invariably boiled her syringe before giving the vaginal douche. Unless the entire tube was filled and well immersed in the vessel of boiling water it can readily be seen how ineffectual such sterilization would be. Moreover, a nurse who would so infringe upon the laws of surgical cleanliness as to give an enema with the rubber tube of the syringe would presumably be guilty of other further indiscretions.

#### CONCLUSION.

The above case presents several unusual features. The patient herself having an inordinate dread of puerperal infection was extremely appreciative of the aseptic technic to be taken at her expected confinement and readily cooperated with her physician in all his precautions. The nurse was selected by the husband in the early weeks of pregnancy. She was a graduate of one of the most reputable of Eastern training schools, some fifteen or twenty years previously, and she bore an excellent general reputation. In spite of her remission in taking upon herself the responsibility of administering antiseptic douches daily, she was but following the example of those whom she felt were older and better qualified men than the writer. Moreover, she openly declared that it was impossible for her to keep up with what she considered the "fads of progressive medicine." She could not understand why one year she would work for an obstetrician who was ordering three douches daily and five years later find him unrelentingly barring all douches from his obstetrical practice.

With the surgical cleanliness the obstetrician endeavored to carry out, the entire absence of manipulations, the ideal labor of the patient, the normal delivery of the child, the placenta and its membranes, the hearty cooperation of the patient and her husband in the aseptic precautions to be used, the sufficiency of means whereby all arrangements could be carried out according to the directions of the physician in charge, the employment of a competent trained nurse, it would seem that the danger of an heteroinfection was almost out of the question.

That the streptococci coming from the interior of the uterus had been carried there by the blood from some focus of infection localized in a remote portion of the body is, taking into consideration the history of the case and our present knowledge, improbable.

That the streptococci were introduced before or during the process of labor, or at the time of delivery, gives us an answer in the negative. Granting that the afternoon or evening of the tenth day, after the obstetrician had presumably made his last call, marked the insidious symptoms

of the invasion of the puerperal infection, we certainly are justified in assuming that the germs had not gained an entrance until after the sixth day following labor. Giving the streptococci ample time to develop, the time of invasion narrows itself to the seventh, eighth or ninth day after delivery. In considering the history of the case, it seems highly probable that the mode whereby the germ gained entrance to the uterus was through the medium of the douche. The source of the streptococci might easily have been upon the external genitalia and pushed into the vagina by the sterilized douche point. Or they may have been carried directly into the tract from the rubber tube of the syringe, which had been previously used for a high enema. The free dilution of the vaginal secretions by the douche water and perhaps the impairing to some extent of the vitality of the vaginal tract by the use of strong antiseptics would be a rational explanation of the mode of invasion of the streptococci which terminated in so severe an attack of puerperal infection when the puerperium was so far advanced.

The douche has so limited a field of usefulness that the necessity of ordering it as routine practice at the maternal bed is certainly as dangerous as it is unnecessary.

While it must be conceded that a vaginal douche given with strict attention to asepsis is not a precarious procedure, it is unfair to expect the average nurse, no matter how capable she may be, who shoulders the multitudinous duties connected with the maternity room, to properly give a vaginal douche. The obstetrician who endeavors to carry out to the best of his ability surgical cleanliness at the bedside of the puerperium will find in many cases that his efforts are thwarted if he sanctions the giving of douches. If the occasion arises that demands such a course, he had best give them himself with due regard to all the principles of surgical cleanliness.

For the benefit of his future patients the writer has had printed upon the back of his obstetrical list, which are given to his pregnant clientele, the following instructions to his nurses. He hopes in this way to guide them, as well as to assist in educating his patients.

#### INSTRUCTION TO NURSES.

It is taken for granted that the nurse does not take charge of an obstetrical case if she has come direct from a contagious or infectious patient, unless she has previously consulted with the physician in charge. That she comes on duty with hair freshly shampooed, and fresh laundered linen throughout.

1. Under no circumstances give a vaginal douche before or after labor has begun, nor at any time while on service, without positive *written* instructions from the physician in charge.

2. Do not give tub bath after labor has begun. A shower, or thorough sponge bath may be given.

3. Before washing or handling the vulva for any purpose whatsoever, clean your finger nails and thoroughly sterilize your own hands by scrubbing with freshly sterilized brush and green soap for five minutes by the clock, then soaking hands for five minutes in 1-2 per cent. solution of lysol, or 1 to 5000 bichlorid of mercury solution.

4. After labor has started give soap suds enema—three pints—with a rectal tip which has been previously sterilized by boiling for ten minutes.



5. Shave the pubic hair with carbolized razor, or, if patient objects, clip the pubic hair with scissors that have been carbolized for ten minutes in 25 per cent. carbolic solution.

6. After giving enema, and instructing patient to wipe the toilet paper from the rectum backward, prepare your hands as above directed. Then wash with antiseptic solution the lower part of your patient's abdomen, sides of thighs and vulva. If the cotton should touch the anus while washing the vulva it must be thrown away and a fresh piece used. Wash buttocks and anus last. *Always wash and wipe from anus downward, never from anus upward.* By rubbing from the anus upward you are liable to introduce pathogenic germs into the vagina and thus infect your patient. Finally irrigate vulva with 1 to 5000 bichlorid of mercury solution.

7. After the patient has been confined irrigate the vulva after each urination with a pint of sterilized water (unless special instructions are given about a specific antiseptic) and dry with a generous supply of sterilized cotton by gentle pressure, not by rubbing.

8. After the patient has had a movement of her bowels, irrigate the vulva with sterilized water and place sterilized cotton over same. Cleanse the rectal region by turning her on her side and washing with soap and water. By turning patient on her side before cleansing anus you avoid a possible contamination of the vaginal tract with pathogenic germs contained in the fecal matter.

9. If any part of the sterilized dressing or pad which is to cover the vulva comes in contact with any substance not absolutely surgically clean, it is no longer aseptic, and must be thrown away.

10. Have two antiseptic solutions prepared for physician's hands in sterilized receptacles—a 1-2 per cent. lysol and a 1 to 4000 bichlorid of mercury solution.

#### DISCUSSION.

Dr. Charles S. Bacon, of Chicago:—Mr. President, this subject of puerperal infection is coming to be, from a medicolegal standpoint, an extremely important one. The Medicolegal Committee finds that a great many of the cases of malpractice arise in obstetric practice. People are generally coming to believe that in a case of childbed fever the cause of the infection is the attending physician. The physician is blamed, and hence the subject has taken on new interest and importance to us.

The clearly stated case of Dr. Gillmore corroborates the contention he makes as to the importance of omitting the douche from the treatment of these cases. In this case it is probable, judging from the history as well as from the examination, the infection was increased by the physician who previously attended the case. The low leucocyte count and the degree of anemia show that. Moreover, we find generally that patients in the best circumstances are often less resistant. It is amazing sometimes to see what patients in dispensary and midwife practice can stand, and we can explain such results simply on the supposition that such patients are immune to the ordinary infections, while the best-cared-for patients are not immune. We have that to consider. Possibly the contamination which resulted in the infection of this patient would not have resulted so harmfully had the patient been in other circumstances. However, the history of the case seems to show that there was no chance for hetero-infection except from the douche. The possibility of an autoinfection is not entirely excluded, although with a late infection we can not draw any conclusion. A late infection, in the case of gonorrhea, is extremely common. A late infection in other cases where the streptococcus is found, seems to indicate that in some cases there may be an autoinfection. It is well known that streptococci are found in the vagina of perfectly normal women, and whether they are pathogenic or not we can not determine with certainty. It is generally held that they are not pathogenic, but the possibility of non-pathogenic streptococci being changed into pathogenic during the puerperal period is always present, and that is a point we must keep in mind in these medicolegal cases for our own protection, and it is not impossible



that in this case there may have been present streptococci in the vagina, which are so often found, and which became virulent during the first stage of the puerperium. The great probability is that in this case there was hetero-infection, the infection being carried in by the douche. This raises the question of why and how the douche shall be given. The possibility of disinfection of the vagina with a douche is very remote. I think we may safely say that it is impossible, and we also know that antiseptic douches are more harmful than plain water or salt solution, as has been clearly shown by the bacteriological examination of Kroenig, who pointed out that virulent bacteria introduced into the vagina would disappear in the course of twenty-four hours, on account of the bactericidal secretion of the vagina; but if previous to the introduction of virulent bacteria antiseptic douches are given the bacteria remain two or three times as long. If a douche is to be given, it should not be an antiseptic douche.

Dr. M. S. Marcy, of Peoria:—Four or five years ago at a meeting of the society held at Springfield I read a paper on this same subject, puerperal infection. At that time I advocated a treatment which I have followed for the last fifteen or twenty years and one which I have never found to fail. That treatment is simply this: Wash the vagina thoroughly with a solution consisting of peroxid of hydrogen, about two-thirds to one of warm water; dilate the os thoroughly, and wash out the uterus very thoroughly with the same solution. That has been my practice for at least fifteen years or longer, and during that time I have never known of a failure or death while I have practiced that treatment. Of course, it is very plain to be seen that if there is anything within the body of the uterus that is producing this infection, or there is any tear in the vagina, we should render that material aseptic, whatever it may be, if possible, and then there will no longer be absorption of the poison. My experience has taught me that if we do this, render the effete material aseptic, or stop the absorption of this effete material which is poisoning the system and causing elevation of temperature, etc., within twenty-four hours the temperature will decline to normal. I have seen cases of abortion where there has been *débris* left behind, and after its removal I have noticed within twenty-four hours, after rendering this material aseptic with peroxid of hydrogen, the temperature, which was 104° to 105°, decline to normal, and the patient made an uninterrupted recovery.

After treating the uterus in this manner, pieces of *débris* of the size of the thumb or larger may be left for days, or until they come away voluntarily without having the slightest odor, proving the efficiency of the treatment.

To those who have never tried this treatment, I would say, before condemning it, as the essayist has, give it a fair trial.

Dr. Charles E. Paddock, Chicago:—I wish to reply more particularly to the last speaker. I have seen a number of these cases and rarely have I found it necessary to explore the interior of the uterus or wash out the same. In the great majority it is better to leave the case to Nature and not interfere with the interior of the uterus. The protection which Nature affords the patient by throwing out a zone of leucocytes is well known, and if we disturb this barrier by curetting or irrigating, or by making applications with a view to rendering the micro-organisms inactive, as the last speaker said, we are liable to do more harm than good. It is nearly impossible to make an application of any kind to the interior of the uterus that will destroy all the micro-organisms that may be present. Let the zone of leucocytes alone; it will protect and prevent the further invasion by the bacteria. If the infection has gone beyond and entered the lymph channels of blood vessels, then certainly any application which might be made to the uterus would be of no avail. The treatment should be largely prophylactic. We are all of us too careless in the conduct of our cases. It is next to impossible to make an examination, for instance, of a woman in labor without carrying in some infection. We can not render aseptic or sterile the surrounding field, and if we limited the number of digital examinations to the minimum there would be less infections. The pernicious use of the douche during pregnancy, or labor, or the puerperium is to be abolished. And then, again, an examination, if made,

should be done with a rubber glove upon the hand of the accoucher. External examinations tell the physician more than the internal. The presentation and the position can be determined, and if the woman be in labor her attitude or the peculiar cries are of diagnostic value as to the progress of the labor. It may be necessary to make one examination, but one should be enough during the course of the labor.

The cause of long labors should be sought. They generally mean that there is some pathologic condition which may be corrected, and by the correction of this position the labor may be shortened. A long labor places the woman in such a condition that her resistance to bacteria is very materially lowered, and these bacteria, which are always present in the lower part of the genital tract, while non-pathogenic, many easily become pathogenic.

Dr. Charles B. Brown, of Sycamore:—The subject of puerperal infection is an interesting one and should receive a free and thorough discussion. But how the country doctor can surround his lying-in patients with all this clap-trap of a certain number of sheets, a certain number of towels, pans and kettles, and many other things that have been described at medical meetings, is beyond my comprehension. There are country doctors here within the sound of my voice who live in the small towns, and possibly some of you who live in the larger cities, who go to houses where they do not find even a wash basin, to say nothing of a lot of clean towels. You may find a dirty rag. What are you going to do? The chances are you have not seen the patient before; you do not know anything about her. There may not be a clean sheet in the house, and perhaps no sheet at all. I tell you, gentlemen, practitioners of medicine frequently do too much in these cases. I believe God Almighty fixed this thing all right. (Applause.) Nature intended labor to be a perfectly physiological process, and some of you, when you bring in all sorts of aids to assist Nature, change the whole process, and I believe you do more harm than good. Much of the trouble or harm that is done to these patients is caused by the meddlesome doctor or by some busybody around the house. I have been engaged in the practice of medicine for over thirty years, and during that time I have never used a vaginal douche before or during labor. I have never boiled the sheets. My hands have always been clean. I take particular pains to see that they and everything else that comes in contact with the patient, as nearly as I can, is clean. I have attended from a thousand to fifteen hundred women in confinement, and have not lost a single case, and of this number I only recall one patient who was infected. That has been my practice. I had a little trouble with a nurse who used bichlorid tablets and almost killed a woman. I believe there is a good deal of harm done by interfering in these cases too early. It is necessary for us to wait and wait, and if this was done more frequently I believe the perineum would not tear half as often or as easily as when we interfere so much.

Dr. —————:—I am very sorry to have to disagree with some of the statements made by the last speaker (Dr. Brown), although I agree with him in some respects. I read a paper on this subject a few days ago at Pontiac. I have been trying to do clean work in relation to my obstetric practice, and in the last few years I have been taking a greater interest in it than usual. In my paper I made a remark with reference to the importance of caring for the patient during her puerperium, and one good old doctor said, "What, in the name of God, are you going to do when you have not a clean pan, and this and that, in order to sterilize your hands, and have to proceed with the examination?" I trust that the country doctors here will not say, "I will look after Mrs. Jones, and, although I do not have the facilities for so doing, Mrs. Jones will get along all right." That is not the way to do. We have heard read to-day an elaborate paper on puerperal infection in which the essayist reported a case in great detail. He had his patient surrounded with the most approved things and up-to-date technique, and yet she had a bad puerperal sepsis. How much better one feels when he knows he has done the right thing to his patient, even though infection occurs! He feels that the infection is not due to any fault in his technique; that it has

not come from his hands, on account of the precautions he has taken. God is kind to us sometimes. He overlooks our faults, and if a doctor in a case of labor will take along some 5-cent brushes and have them boiled, or boil them himself in some sterilizer in his office, and take along some green soap, or a bottle of lysol, and thoroughly cleanse the external genitalia part by part, he can do a great deal toward preventing infection that might otherwise occur. He does not need a Kelly pad, but should have, if possible, a wash basin, and if he will take care to cleanse the parts thoroughly, and make as few examinations as possible, he will have done a good deal towards the prevention of sepsis. If he does not have clean hands, then, in the name of Heaven, let him make no internal examination. Let him use a modern stethoscope and by auscultation determine the development of labor as he ought to do as a scientific man, and not be content to let the patient alone, thinking that Nature will do the rest.

I do not believe in the use of peroxid of hydrogen. If you will take pains to read an article by Williams on this subject, you will find that out of 150 cases he reports virulent streptococci formed 46 per cent. of the infective processes, although the patients did not die, nor did their temperature exceed 101° or 102°. Let no doctor think that because a patient develops a little temperature of, say, 101° or 102°, she is getting along all right. That woman is infected, and she became infected through or by some means, and most likely through the dirty hand of the doctor.

Dr. James W. Hamilton, of Mount Vernon:—I live in a locality where we do not have the facilities such as city physicians have. However, I wish to say that I have delivered women in hospitals; I have delivered them in good homes, and I have delivered them in log cabins, and must confess that I have had just as large a percentage of cases of infection in hospitals, where I was surrounded with trained nurses, and had taken every precaution to prevent sepsis, as I have in these other places. I know that if my hands are as sterile as I can possibly get them, and wear rubber gloves that have been boiled for twenty minutes, and antiseptics galore, I do not convey streptococcus infection; but in the history of many of these cases I find there was an old cervical catarrh before this conception had ever taken place. Many of the women have been treated for a cervical catarrh, and I think that if a careful examination was made each one of these patients who is infected would give a history of an old cervical catarrh having existed for years and years, and that with dilatation of the os and with the excoriations of the parts that have taken place there has been opened up a doorway for the streptococcus to enter the general circulation, and so the patient becomes infected.

There are thousands upon thousands of patients who are being delivered in country homes by doctors who harness their own horses, who curry their own horses, and who do not practice the first principles of asepsis, and yet they tell us they have very few, if any, cases of puerperal infection. If the infection is conveyed by the hands of practitioners, I would like to know why more of these women are not infected. I know a country doctor, a personal friend of mine, who does not believe in this theory of asepsis. He is mistaken. I know he is mistaken. He has a large practice, and has delivered over twelve hundred women, and of that number he has had only one or two cases of puerperal sepsis. I do not suppose that he has ever used a particle of lysol or carbolic acid in his life with which to wash his hands. He curries his own horses and lives on a farm. If streptococci are to be found on men's fingers, why should we not have more cases of infection in the country districts? There must be some place where streptococci enter through abrasions in the cervix, due, possibly, to an old cervical catarrh.

Dr. Robert T. Gillmore, Chicago (closing the discussion):—In reply to Dr. Marcy with reference to sterilizing the vagina by using peroxid, it is a practical impossibility to get into the cervical glands and into the folds of the vagina with peroxid of hydrogen or any other antiseptic. If there are any pathogenic micro-organisms in the parturient canal and you have traumatism of the parts, which is inevitable, and the patient is susceptible to the individual germ present, she



will be infected, and it does not matter how much peroxid of hydrogen may be used; the only effect will be additional traumatism from the scrubbing. As an example of that, I presume Dr. Marey has treated many cases of gonorrhea, but the infection has gone on. I have had such cases for six or eight months, during which I have tried my best to clean up and get rid of the gonococcus, but was unable to do so. If we can not get rid of the gonococcus in six or eight months, how can we remove other micro-organisms by sterilizing the vagina for ten minutes?

With reference to the remarks of the gentleman (Dr. Brown), who said that he had had a thousand or fifteen hundred cases of confinement without infection, I wish to say that I do not believe it. I say such men do have infections, and the reason they say they do not have cases that are infected is because they do not follow their cases after confinement. They do not know when the temperature of the patient goes up.

Dr. Brown:—I said without a death. I did not say that I had no case of infection.

Dr. Gillmore (resuming):—In reference to sterilization being practiced by the country doctor, the gentleman (Dr. Brown) spoke of it as "clap-trap," and said that he had managed to save all of his patients without the aids I have mentioned. I think it is a lazy man's argument. With an obstetric sterilizer (the Rochester sterilizer) twenty-four inches long and eight inches wide, which you can have in your home, packed with sheets, brushes, leggings, a dozen towels, gown, etc., you can get around this idea that when you go into a dirty house you must ignore asepsis. It does not need any argument to point out the need of having these things; you can not do any harm by having them; you can not do harm by washing your hands. The only valid objection you can make is that it is unnecessary labor for the physician in charge. You are not taking chances of infecting your patient when you are aseptic, even though you do not agree with those men who insist upon surgical cleanliness at the patient's bedside.

In regard to hospitals, hospitals are the homes of germs. They live in hospitals. There germs of all kinds are found. The same thing applies to cities as compared with the country. We have more germs in the city than in the country. A good example is the germ of tetanus. We know that it inhabits certain places. A man falls off from a scaffolding, shortly after which he develops tetanus. If he should drop fifty feet from that place the chances are that he would not have tetanus. It means that the tetanus germ is in that particular locality. Certain regions of the state have the tetanus germ. In the country you do not have pathogenic germs to the extent that we have them in cities, owing largely to imperfect sanitary conditions. Neither do you have the variety of germs in private homes that you have in hospitals.

In regard to the question of there being but few deaths from puerperal infection, I beg to say that point is not proven. We certainly have more than we should have. I received a letter from a doctor a few days ago in which he referred to three deaths from puerperal sepsis caused by midwives in Chicago, and all of them used douches. I also received another letter from a doctor in which he stated that he was taking care of a case of puerperal fever at present; a midwife had confined the woman, and in mixing the water for a douche she had used water in an ordinary dishpan.

Years ago Oliver Wendell Holmes brought up the question of why some doctors had cases of puerperal infection and others had not. Fully 40 per cent. of one man's patients died of puerperal infection. He was worried. He began to investigate the cause of these deaths. He abandoned everything practically that he had been wearing or using. He bought new clothes, new gloves, a new harness for his horse, and not until he changed his lines did his infection cease. He had not been using an aseptic technic, which was not known at that time.



## CESAREAN SECTION.\*

E. C. FRANING, M.D.

GALESBURG, ILL.

To the procedure of removing the fetus through the abdominal wall of a pregnant woman was given by Pliny the name of Cesarean section, from *cædere*, to cut, and not from the name Cæsar. It has been both affirmed and denied that Cæsar was born by this method, but upon this point there is no authenticity. Scipio Afrieanus and Manilius were delivered *per abdominalis*.

In the Roman days a pregnant woman was not allowed to be buried until the fetus was removed, and when the operation was done at death or immediately following many babies were saved. There is no authentic case of this operation being performed on a live woman until the year 1500, when, after thirteen midwives and barbers had exhausted themselves, a butcher delivered the baby through the abdominal wall of his wife. He made no attempt at hemostasis or antisepsis, yet both mother and baby recovered. The operation fell into the hands of the barbers and was very severely condemned until the latter part of the nineteenth century because of the high mortality from shock, hemorrhage and sepsis. Trautman, a German physician, was the first doctor to do a Cesarean section in 1610. He knew nothing of sepsis and made no attempt to suture the uterine wound, as it was supposed by the alternate contractions and relaxations the stitches would pull out. Necessarily the mortality from hemorrhage and sepsis was high, which naturally enough would condemn it, and even as late as Virchow's day he relates the prosecution of a surgeon for doing a Cesarean section on a dying woman to save the baby.

In the nineteenth century the suturing of the uterine wound was advocated, but not until 1876, when Porro advised his operation, that of amputating the uterus and treating the stump in the abdominal wall, was the mortality materially reduced. But it was in 1882, just at the dawn of aseptic surgery, which means so much in Cesarean section, were the chief encouragements of the operation given by Sanger of Leipsic. It was he who demonstrated the necessity of cleanliness, the method of incision, the proper hemostasis and the necessity of operating before the patient is in a poor condition from other trial procedures. From that time to the present the operation has gained favor. To and from this operation procedures have been added and subtracted, but the operation of to-day is not materially changed from the old classic operation of twenty years ago. The operation to-day under favorable circumstances is among the highest achievements of modern surgery in decreasing the life risk of both mother and child in certain classes of obstetrical cases. What will be the limitations of its field only time will tell. But one thing is sure, it will remain just as long as the human female is the subject of inability to deliver her child *per viam naturalis*, and, more than this, it will entirely supplant craniotomy on the living child and narrow

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very much the field of symphysiotomy and other mutilating operations of obstetrics.

The indications for Cesarean section are either absolute or relative. When the child is dead the indication is absolute when the conjugate vera is 6 cm. or less, as the procedure for removing the child under these conditions is attended with a higher mortality than a Cesarean section; also the indication is absolute with a dead child when the pelvis is obstructed with an unremovable obstruction. With a living and viable child the indications are absolute when the mother is moribund, when the conjugate vera is 8.5 cm. or less, or when the pelvis is obstructed with unremovable objects. Since the mortality of the operation has been reduced to so small a percentage, many other indications are put in the absolute class. To the relative indications belong all other conditions to which an alternative of procedure may be chosen, as a moderately contracted pelvis, eclampsia, placenta prævia, tumors, etc.

Edward Reynolds,<sup>1</sup> after a personal experience in 23 Cesarean sections with a maternal mortality of nothing and loss of two children, advised careful pelvimetry in all primiparas and all multiparas with a previous history of difficult labors. In the last week or two of pregnancy of all materially contracted pelvises, he makes repeated trial examinations of pushing the head down on or into the pelvis to determine as nearly as possible the size of the child. In those of which the head seems larger than the pelvis after the pains begin, he puts them under anesthesia and makes the final trial examination by pushing the head down on or into the pelvis. If the head seems much larger than the pelvis, so much so that a powerful first stage of labor can not engage the head or be pulled through with forceps, then he advised Cesarean section. He thinks the cases chosen by that method and operated on early should result in a minimum mortality. He lays considerable stress on the consistency of the head. If the head is soft and yielding it is a good point on the side of Nature; if hard and unyielding it is a point on the side of section. He allows symphysiotomy and pubotomy a very narrow limit as compared with early Cesarean section, but advises very strongly against late section after repeated or especially questionable examinations have been made.

Veit thinks the mortality in section should be very little in relative indications under the proper conditions, early careful pelvimetry and diagnosis and very few or no vaginal examinations at the time of operation. He had a maternal mortality of one in 13 cases, which was due rather to catgut used in the uterine wound.

E. B. Craighens,<sup>2</sup> after a personal experience of 9 cases, says craniotomy and embryotomy in a living child with a mother in good condition is justifiable only in extreme conditions. He thinks the mother's life should be considered first, but with a maternal mortality of less than 5 per cent. under favorable circumstances fetal life should be considered also. Symphysiotomy as compared with Cesarean section, the mother and child being in good condition, the latter should always be done with a conjugate vera of 7 cm.

1. American Medicine, Sept. 28, 1901.

2. Medical Record, May 4, 1907.

C. S. Ill, reviewing 10 cases of Cesarean section, says it ought to be done more often than it is where the child is in danger, since the mother's chances are as good as by any other procedure.

Everke reports a series of 29 cases of Cesarean section of which 8 mothers were lost. The children which lived to the time of operation were saved, and he advises very strongly against perforation of living child unless very strong indications in favor of saving mother's life. The reason of his high mortality was that 7 were eclampsia cases, of which 5 patients died.

H. Keither, from Chroback's clinic, reports a series of 53 cases of Cesarean section for various reasons. They operated on all cases with a conjugate vera of 6 cm. and in all cases with a generally contracted pelvis with a conjugate vera of 7.5 cm. In discussing the modern indications for Cesarean section, Galabin thinks that by the advance of modern surgery the indications should broaden very much; not only should markedly contracted pelves be terminated by Cesarean section, but many cases of slightly contracted pelves, antepartum hemorrhage and eclampsia also.

Bar tabulated 170 cases of Cesarean section with a mortality of 6.4 per cent. Williams collected 172 later cases with a mortality of 3 per cent., while Meriwether records a series of 269 cases with a mortality of 5.1 per cent. The former two series were operated by competent men and under favorable circumstances, while the latter was not favorable.

Barsch thinks that perforation of living child can not always be avoided, but cites six interesting cases. First: iii-para with a flat pelvis, conjugate vera 6.8 cm.; first labor, perforation, living child; second labor, premature induction, dead child; third labor, Cesarean section, results good. Second case: generally contracted pelvis, conjugate 7.7; first two labors, perforation, living child; third labor, Cesarean section, results good. Third case: flat rachitic pelvis, conjugate vera 7.8 cm.; first labor, 34 hours, perforation, living child; second labor, extramedian symphysiotomy, results good. Fourth case: flat rachitic pelvis, conjugate vera 8.5 cm.; first labor, spontaneous, three days' labor; second, three days' labor, child dead; third labor, three days, spontaneous, child dead; fourth, spontaneous, three days' labor, child living; sixth, perforation of living child after three days' labor; seventh labor, Cesarean section, results good. Fifth case: generally contracted pelvis, conjugate vera 8 cm.; first and second labors, perforation, living child; third labor, induced prematurely, child alive but died soon; fourth labor, Cesarean section, results good. Sixth case: flat rachitic pelvis, conjugate vera 8 cm.; first labor, forceps, child dead; second labor, induced premature, child living; third labor, induced premature, child dead; fourth labor, abortion; fifth labor, induced, child dead; sixth labor, spontaneous, premature child, alive; seventh, perforation; eighth, Cesarean section, results good.

DeLee<sup>4</sup> thinks Cesarean section should be more often resorted to even in slightly contracted pelvis.

3. *British Medical Journal*, 1902.

4. *Practical Medicine Series*, April, 1904.

Daniels advises section in pelvic exostosis unless they are of such insignificance that there would be very little question of delivery of living child.

Wolf, after considering the treatment of 297 cases of contracted pelvis, concludes that after all the progress has been made in Cesarean section and symphysiotomy they have not altogether replaced high forceps, prophylactic version and perforation, although they are lessened.

R. Jardine reports a case with a conjugate of 5.5 cm., in which it was necessary to deliver a three-pound baby with a crotchet. He thinks Cesarean section should have been done. Another case of a woman with a large pelvis, the head would not enter on account of muscular impediment. Craniotomy was chosen because of infection, otherwise section would have been done. He reports three other cases in which Cesarean section was done. The first a rachitic dwarf with a conjugate vera of 6. The second the same, with conjugate vera of 4 cm., and the third, a diameter of 7 cm. All the mothers and children lived except one child, which was dead before operation.

Henkel, at the Frauenklinik, reports 66 cases of labor in women with contracted pelvis with a conjugate diagonal of from 7 to 11. No woman was confined less than three times, a total of 286 confinements. In the first labor no living child was born through a conjugate diagonal of less than 9.7 cm., regardless of operation used. Several spontaneous deliveries occurred per pelvis with a conjugate diagonal of 10.5 cm.; the forceps were fatal to all children if applied to head before engagement into contracted pelvis. Subsequent labors gave better results, but no child was born through a conjugate diagonal of less than 9 cm. In subsequent pregnancy of the same women section was resorted to with better results. He advises section in preference to prematurely induced labor, but that it should be performed only under favorable circumstances.

Pobedinsky prematurely induced labor 53 times for contracted pelvis. In one case of conjugate vera of 7 cm. pregnancy was twice terminated prematurely without success, but the third was successful after section. He also reports 15 cases with conjugate vera between 7 and 8 cm. Eight of the children died. Four spontaneous labors, ten versions and one forceps, one rupture of uterus, two cases with conjugate vera above 9 cm., both mother and child lived.

A. Sandstein, in *British Medical Journal*, in speaking of symphysiotomy, gives a minimum of about 7.3 cm. for the conjugate vera. The pubes in symphysiotomy can be separated but 6 cm., giving an increase in the true conjugate of but little more than 1 cm.; that would be the smallest possible measurement through which a baby could be delivered with safety to itself and mother.

Charles Jewett, in speaking of symphysiotomy as contrasted with Cesarean section, says: First, that symphysiotomy is still a useful operation within a limited range of pelvic contractions. Second, it is suited only to conditions in which the pelvis needs only a small additional space. Third, it is a valuable resource where forceps unexpectedly fails. Fourth, axis traction forceps should always be tried before resorting to sym-



physiotomy. Fifth, its results would be much improved if its field was limited to pelvises whose contraction was not less than 7.5 in flat and 9 cm. in generally contracted cases. Sixth, under equally favorable conditions its total mortality should not be greater than Cesarean section in presence of exhaustion. Eighth, it may be elected in place of Cesarean section where it can be assumed that the obstruction is well within its limits, and then the choice is left to the operator. Ninth, symphysiotomy within its proper field is to be preferred to Cesarean section by the operator with little experience in abdominal surgery.

Reynolds<sup>6</sup> says the inconvenience and high mortality rate of symphysiotomy render it distinctly inferior to section as an operation of choice. but as compared with craniotomy or prolonged high forceps without craniotomy involves almost no risk to patient. Reynolds, therefore, believes it to be the operation indicated where Cesarean section is ruled out or in cases where the added space will make it probable for a living child.

Much is said for and against Cesarean section in cases of placenta prævia.

Hartel tabulated 123 cases of placenta prævia with a death of 12 mothers, 9.7 per cent., two of whom died from other causes than the placenta prævia, leaving a maternal mortality of 8.1 per cent. Of the 124 babies, because of twins, only 32 were born alive, of whom 5 died soon after.

Medle states that in Waldenberg's 112 placenta prævia cases 5 per cent. had infection and 15 per cent. of the mothers died at or soon after labor; child mortality was not mentioned.

R. P. R. Lyle<sup>7</sup> reports from the Rotunda that there were 74 cases of placenta prævia between 1889 and 1899 with but four maternal deaths. Two of these had been treated by ignorant midwives and, of course, were infected. Twenty-eight of the cases were at full term, of which 15 babies lived, while only 13 of the others lived.

F. A. Higgins<sup>8</sup> records 75 cases of placenta prævia, 56 of which were treated in hospital wards and 19 at patients' homes. Of the 56 mothers, 6 died and of the 19 two died, a death rate of 10.5 per cent. Quoting from the same author, the treatment of placenta prævia by Cesarean section can show no good results. It can not be compared with the same operation when performed for other things, as the condition of the mother is worse. With the greatest care and skill the mortality in Cesarean section will run about 10 per cent. The child mortality in placenta prævia is very high, 50 to 60 per cent., and will remain so unless the percentage of premature births, now 62 per cent., can be reduced. He concludes that the results of Cesarean section and the operative treatment for placenta prævia are about the same, but that Cesarean section would be done under most unfavorable circumstances and the results attended with a higher mortality. Werning reports 50 cases of placenta prævia operated by different methods by experts with a mortality of only 4 per cent.

6. American Medicine, Sept. 28, 1901.

7. British Medical Journal, March 6, 1901.

8. Boston Medical Journal, Jan. 2, 1902.

Elernfest<sup>9</sup> emphatically opposes Cesarean section for placenta prævia and disagrees with Ford, Dudley and others that Cesarean section is a comparatively safe operation, while that of placenta prævia has a higher mortality. He draws the following conclusions: First, the results of Cesarean section are worse than stated; second, the results by the usual treatment of placenta prævia are better than usually stated; third, there is every reason to believe that the results of Cesarean section for placenta prævia will be much worse than the classic operation; fourth, Porro's operation may be performed in the majority of cases; fifth, Cesarean section for placenta prævia does not promise to reduce the child mortality much; sixth, the most promising treatment for placenta prævia is either to pack the vagina tightly and thereby arrest the hemorrhage and hurry up labor or to dilate the cervical canal and perform bipolar version.

F. D. Dorman<sup>10</sup> had ten deaths in a series of 84 cases of placenta prævia; seven died from shock and hemorrhage, one from eclampsia and two from sepsis.

F. D. Donahue did a successful Cesarean section in a case of placenta prævia and advises it in placenta prævia centralis, placenta prævia with rigid os, transverse presentation with placenta prævia and in placenta prævia where the cord prolapses and bothers.

J. B. DeLee,<sup>11</sup> after a personal experience of 30 cases, thinks there should be no deaths in uncomplicated cases of placenta prævia when treated by the usual way.

Higgins<sup>12</sup> details 6 cases of placenta prævia with death of one mother and five children.

Chauncy D. Palmer<sup>13</sup> recommends Cesarean section when the os is rigid and closed.

Hammer<sup>14</sup> tabulates 107 cases of placenta prævia; mortality, mothers 7.4 per cent., children, 54.2 per cent.

H. F. Lewis<sup>15</sup> thinks the treatment in placenta prævia should be directed toward saving the mother, since the fetal mortality is 69.74 per cent. He considers the maternal mortality at 10 per cent. to 20 per cent.

John F. Morgan<sup>16</sup> collected 24 cases of Cesarean section for placenta prævia by 21 different operators. Fourteen of them were the Sanger, 7 Porro and 3 not mentioned. The majority were emergency and very unfavorable from repeated hemorrhage and where other methods failed. Five mothers and 13 children died, 10.8 per cent. and 54.3 per cent., respectively; 8 of these children were dead or non-viable and 5 died shortly. He thinks both these mortalities would be greatly reduced if proper selection could be made.

DeLee, in commenting on it, thinks the obstetrician or surgeon should not get excited when he sees a flow of blood in placenta prævia and rush for the knife, but should keep his mental equilibrium and know obstet-

9. American Medicine, Jan. 11, 1902.

10. Medical Record, 1902.

11. American Gynecology, August, 1902.

12. Boston Medical and Surgical, January, 1903.

13. Journal Obstetrics, March, 1903.

14. Münchener med. Wochenschrift, Sept. 1, 1903.

15. Illinois Medical Journal, October, 1904.

16. Journal American Medical Association, Nov. 12, 1904.

rical resources and trust more to the colpeurynter and Braxton Hicks. He is, however, convinced that abdominal section for placenta prævia has a place in primipara with closed os and under favorable conditions.

W. A. Briggs<sup>17</sup> reports 4 cases of placenta prævia, two treated by the usual way and two by Cesarean section. He does not mention the fate of the children by the usual methods, but saved one mother. By the abdominal method both mothers and children were saved. His conclusions are thus: In cases of central placenta prævia the Säger type should be done at the greater viability of child compatible with the least danger to mother. In emergency cases, if patient is not too exsanguinated and with a sufficiently experienced operator, the Säger should be done, but if the uterus is infected, the Porro; in undilated and undilatable cervix, obstructive tumors and contracted pelvis and in cases of lateral placenta with uncontrollable hemorrhage.

Considerable has been said about Cesarean section for eclampsia, but, as on other points, no definite procedures are settled upon.

Herzfeld, from Weischelbaum Pathologic Institute, reports 463 cases of eclampsia with 81 deaths, a percentage of 17.5. He lays much stress on prophylactic treatment. Goedecker reports from Ohlshausen's clinic 403 cases of eclampsia with a mortality of 14.36 per cent. and about 50 per cent. child mortality. Ahlfeld thinks Cesarean section in eclampsia should be reserved to cases with a living child and a hopeless mother. Strausman is convinced that Cesarean section in eclampsia is destined to have an important place and reports a successful case which surely would have died under any other treatment.

Naegel thinks Cesarean section in eclampsia allowable only when the child is alive and the mother in a precarious condition, when delivery can not be accomplished any other way.

Scheiber saw 23 cases which had convulsions before labor and 85 which began during labor. Sixteen of the 23 ceased with delivery, 4 continued after and 3 were never delivered. Of the 85, 47 ceased with delivery, while 38 continued. Herman collected 38 cases from a London hospital, of which 20 recovered and 18 died. Eighteen had no convulsions after delivery.

Veit considers Cesarean section in eclampsia only where the os is rigid and completely closed. The indications for Cesarean section, according to Lowenstein, varies with different authors. Quoting him, Mueller and Ahlfeld permit Cesarean section only with live child and mother hopeless. Ohlshausen thinks it is demanded in eclampsia where labor does not progress.

Lowenstein reports three cases of severe eclampsia upon which he did Cesarean section. The three mothers and two babies died.

H. A. Van Guérard reports a Cesarean section on an eclamptic primipara with fatal results.

Jahreiss says that when eclampsia shows itself at the beginning of labor two procedures present themselves: Cesarean section and colpeury-sis, favoring the latter especially for the practitioner.

17. Journal American Medical Association, May 12, 1906.

Ayers<sup>18</sup> reserves Cesarean section only for live baby and dying mother.

Bumm, a German, had 30 per cent. mortality in 90 cases by the use of morphin, chloroform and chloral hydrate, and 8 per cent. in 24 more, on 7 of which he did the vaginal Cesarean section with good results.

Ahlfeld prefers the Säger operation to vaginal Cesarean section. Sinteuis would rather lose the child and save the mother than do Cesarean section.

Hammerschlag, in 4 cases of vaginal Cesarean section by the Bumm method, had 2 deaths. He reports 21 cases by the same method with mortality of 42 per cent. He gives a series of 34 by the abdominal method, mortality 55 per cent.

This concludes the most important literature in general on the indications for Cesarean section other than a few individual cases. From the diversities of opinion contained in this literature one is left very much bemuddled as to the indications for Cesarean section.

That Cesarean section is a recognized treatment of the highest type in surgical obstetrics can not be denied. And that its indications will broaden and the operation become more general is a certainty. To acquire the exalted position of motherhood is the most cherished and noblest thought of the best women, and especially is this so of our physically deformed, because of a peculiar character acquired from their conditions.

Before the days of Porro and Säger the prospects of the children of these women were very gloomy and not very pleasant for the mother. But our modern results come to these people like a pardon to a condemned man. If this be the verdict after the conclusions in the study of this subject, then why the difference in opinions on the indications for Cesarean section? The answer is for two reasons: First, the introduction into the medical profession of new ideas has two sides, the conservative and the radicalist; secondly, the operation is too young for ripe opinion. Yet, after considering all the literature on the subject and noting the report of such a large number of cases, one is justified in forming deductions and conclusions at least for a guide in his own actions.

After considering the literature upon Cesarean section, I have arrived at the following conclusions:

First.—Practice pelvimetry on all primiparæ.

Second.—Do pelvimetry on all multiparæ who have given a history of difficult labors.

Third.—In all cases of flat rachitic pelvis with true conjugate of 8.5 cm. or less prepare for and do Cesarean section.

Fourth.—All cases with true conjugate between 8 and 8.5 cm. must be looked upon as probable Cesarean section. Allow your patient to go to term and to labor. Prepare patient as thoroughly as you would for surgical operation and make vaginal examination for correct position, etc. Make no more examinations until patient has been in actual labor four hours, when, unless the head has made a decided attempt to enter the pelvis, do a Cesarean section. If the head enters the pelvis, but is

18. New York Medical Journal, May 23, 1903.



later arrested, choose between forceps, symphysiotomy and Cesarean section.

Fifth.—All cases with a true conjugate between 8.5 cm. and 9.5 cm. should be considered as possible Cesarean section and the same procedure may be instituted as in Conclusion 4.

Sixth.—The fetal mortality is so high in prematurely induced labors that it is totally unwarranted as compared with Cesarean section unless the latter is especially contraindicated.

Seventh.—The fact that the maternal mortality in Cesarean section is not greater than by any other method of treatment, and that of the child mortality is much reduced by the former, the interest of the child will force us to honor Cesarean section more often in the treatment of placenta prævia than at present.

Eighth.—In all cases of placenta prævia centralis or with rigid os, unless special indications to the contrary should be absolute, indications for Cesarean section in favor of the child.

Ninth.—In all cases of placenta prævia have the patient under the best conditions and ready for any operation. Begin the treatment by the expectant method, and the moment the conditions arise which threaten either the mother's or the child's life which can not be controlled by any other method, do abdominal section, unless the mother is in a weakened condition and she can be saved by extracting a live or dead child by forceps or version.

Tenth.—Never do abdominal Cesarean section on an eclamptic unless she has a considerably contracted or obstructed pelvis or to save a live child from a dying woman.

Eleventh.—The classic Säger operation should be done in all cases except in tuberculosis, malignancy, tumors or sepsis, in which hysterectomy is the operation of choice.

#### DISCUSSION.

Dr. Denslow Lewis, of Chicago:—I am pleased to have heard this paper which has to do with Cesarean section, because it tends to popularize the operation. For years there has been on the part of the medical profession an abject fear of this operation. Men and women practitioners have thought they must do everything else first; they would press on the uterus, try forceps of different kinds, give ergot perhaps, and often exhaust or infect the patient. That is the reason there has been such a large mortality from this operation in the past. As a matter of fact, the time has now arrived when we consider Cesarean section, like any other emergency operation, one that the surgeon can do as easily as he can amputate a leg. In crushing injuries of the extremity, in strangulated hernia and in other emergencies that occur in every-day work, no one hesitates to operate, and the consequence is that the patient's life is saved. In our obstetric work we should realize that we may do a Cesarean section equally well; indeed, it is our duty to operate, with the hope of delivering a living child and a child that is likely to continue to live when the mother is in jeopardy or it seems probable that the birth can not safely occur through the natural passages. The relative indications should be forgotten. The fact that the conjugate measures so much or so little is unimportant. This operation is a safe one, a successful one, and one that can be done and should be done even by the inexperienced rather than let a woman die from neglect, as is always the case when there is unnecessary delay. For that reason it should be considered early in suitable cases, and its

performance should not be postponed until the woman has become infected or thoroughly exhausted, because we know that when done in time it almost invariably proves, as statistics show, a life-saving operation for both mother and child.

Dr. William H. Malcy, of Galesburg:—I was very much interested in Dr. Franing's paper. I know he has given this subject a great deal of study, and it is only his modesty that has prevented him from giving reports of cases. He has had wonderful success with this operation, and I am sure that if we could have listened to the entire paper we would find a very valuable collection of statistics. He has handled the subject of doing this operation in a skilful manner, and he has demonstrated its great utility to the satisfaction of a great many of his brother practitioners in his city, and, coming, as it does, from him in a rather remote place like Galesburg, probably not as much attention will be paid to it as if the subject had been brought before the society by a physician in one of our larger cities. I am sure that when we come to study the paper, when it is published in full in the ILLINOIS MEDICAL JOURNAL, we shall be greatly benefited.

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## THE TREATMENT OF PELVIC INFECTIONS, WITH SPECIAL REFERENCE TO THE TECHNIC OF PUS TUBE OPERATIONS.\*

CHANNING W. BARRETT, M.D.

Gynecologist to the Chicago Polyclinic School and Hospital, Adjunct Professor of Gynecology, Medical Department University of Illinois, Surgeon and Gynecologist  
Marion Sims Hospital, Obstetrician Cook County Hospital.

CHICAGO.

The subject of pelvic infection is a broad one and has an importance second to none in the field of gynecology. The anatomical relations of the genital tract to the alimentary tract, the physiologic process of coitis, menstruation and child bearing, the abuses to which the pelvic organs are subjected to gratify the sexual instinct and yet avoid the responsibilities of child bearing by means of preventing conception or destruction of the fetus, all furnish predisposing causes that make these organs the most frequent site for the implantation and development of infection.

The reaction to this infection, called inflammation, often saves the life of the patient, but in doing so causes much local and general distress and not infrequently destroys the pelvic organs, and the resulting adhesions may later be the cause of death. The frequency of the occurrence of inflammatory reaction in the intra-pelvic organs and their being non-essential to life, has rendered them subject to much radical operating. Their important bearing upon the happiness and possible health of the patient, and the essential relations they bear to the reproductive function, call for the greatest consideration in relation to conservative treatment, and yet the saving of these organs is true conservatism only when it conserves the life and health of the patient.

The course to be pursued in a given case will many times be illuminated by remembering that the infection is the process at war with our patient, the inflammation represents the work of the soldiers fighting for her life. Our treatment in acute infection should look toward removing infection and not removing inflammation. It should have in

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mind the strengthening of the opposing forces and the weakening of the invading army. The patient does not die from inflammation of the uterus, tube or ovary or peritoneum, but from the infection that the inflammation is unable to combat. What need of removing an acutely inflamed tube, ovary or uterus, except as in doing so we remove the source of infection? When the warfare is over and the leucocytes have conquered, our work is to clear up the field of that which is detrimental to the health of the individual; the diseased tube is removed, the thickened enlarged ovary resected or removed, adhesions broken up, the uterus replaced, etc. But while the battle is progressing we weaken the forces of the enemy by cleansing and draining. Oftentimes the leucocytes conquer easily if drainage affords a ready means of carrying off poisonous products. Now and then we serve the best interests of the patient by the removal of an organ which is the source of the infection. But this should be done, if during the acute stage, with the distinct view of removing infection rather than inflammation. We sometimes hear it said that a patient dies of peritonitis. I wish to emphasize the fact well known to the bacteriologist that the patient dies of infection in spite of the protective efforts of the peritoneum.

Many of our modern text-books treat of inflammation as a disease and many times the term infection is spoken of as of importance as a cause of inflammation. Some speak of infection as lighting up an inflammation, and then speak of the extension of the inflammation from the tubes to the peritoneum, from the local peritoneum to the general peritoneum, as though an inflammation had inherent power of extension. The protective function of the inflammation is perhaps nowhere seen to better advantage than in the typical pus tube, where the inflammation endeavors to close the tubes, thicken their walls and pour out leucocytes to shut in and overcome infection. This is also well seen in local peritonitis. The primary function of protection is just as truly exhibited in a general peritonitis, but oftentimes fails because of the extended area of infection with overwhelming absorption.

Our present conception is not that an infection bears the relation to pelvic inflammation that a match does to a fire, but that it bears the relation that a fire does to the fire department. Just as the fire calls out the fire department, so infection calls out the phagocytes. Just as the firemen are sometimes destructive, so inflammation, the opponent to infection, is sometimes injurious to certain structures. But just as the fireman's primary duty is to save, so the inflammation is primarily a protective process. I have laid some stress upon this phase of the question, because its recognition gives us the only correct conception of the pathology and treatment. This conception of the protective influence of the inflammatory process toward the individual obtains so long as the field of action lies in organs non-essential to life. When vital structures become the seat of this primarily protective process the inflammation itself may help to destroy life.

The isolation and identification of numbers of germs have given us a new conception of the relations of infection and inflammation. The

recognition of the tubercle bacillus, the gonococcus, the streptococcus, the staphylococcus, the colon bacillus and many other germs fixes the responsibility for much of the pelvic pathology in women.

The genital tract is undoubtedly most frequently involved through an ascending infection from without. This infection may reach the parametrium by direct extension along the mucous membrane, or through the tissues by means of the lymphatics or veins. Not infrequently the pelvic organs become infected from the peritoneum or bowel. They may become infected through the blood or lymph channels. Now and then a case is infected by direct extension of a destructive process in the hip joint, and *vice versa*.

Acute inflammatory reactions are more often the result of the introduction of or lighting up of bacteria at childbirth, during an abortion, trauma or operative procedure, or during some of the infectious fevers. The gonococcus is frequently able to provoke an inflammatory reaction when none of the above predisposing causes are present. Fortunately the gonococcus is seldom conveyed from one to another in other than sexual sources. It thrives upon illicit intercourse. One or two generations of one husband cleaving to one wife and the gonococcus would be without a home. Or perhaps, to be more correct, the homes would be without a gonococcus.

When Noeggerath in his prophetic papers in 1872 and later in 1876, before the first meeting of the American Gynecological Society, pointed out the evils of "latent gonorrhea," his teachings, based upon careful observation, were met with doubt and disfavor. It took the clarifying influence of Neisser's microscope and Tate's scalpel to prove to the profession what Noeggerath had taught. Following this, all inflammations in cellular tubes were said to have their origin in the tubes, and postoperative and puerperal infections are due to the streptococcus and all pus tubes were said to be of gonorrheal origin. This we believe now not to be true. The gonococcus is responsible for a large percentage of non-puerperal and non-operative infections, and not infrequently it is the cause of puerperal and postoperative infections, but the severe postoperative and puerperal infections are due to the streptococcus and staphylococcus.

Kroenig produced pure cultures of the gonococcus from the secretions from the cavity of the uterus in nine cases. Von Franquê has found a pure culture of the colon bacillus in the uterus. Pasteur in 1880 first demonstrated the streptococcus in the organs of a woman who had died of puerperal fever. Breger was the first to demonstrate the staphylococcus in a case of fatal puerperal infection. Heggler soon called attention to the fact that the staphylococcus usually causes a less fatal form of puerperal infection. These observations have been abundantly verified by able investigators and meet with general approval at the present time.

Doederlein, 1887 (*Arch. f. Gyn.*, Vol. XL, 1891), reports an epidemic of puerperal fever in which staphylococci and streptococci were both demonstrated. A question that has been of intense interest in relation to pelvic infection is "may the infecting bacteria be contained



within the genital tract and take on activity after operation, abortion or delivery, or must they be introduced?" Time will not permit the introduction of evidence on this question pro and con except in a very brief way. Williams discusses this subject very thoroughly and gives a résumé of the work of different authors in the *American Gynecological Transactions*, 1898. Here he is inclined to believe with Kroenig that his former observations, as well as those of Doederlein, Winter, Steffek, Berguburu, Witte, Burkhardt and others, who found pathogenic bacteria in the vaginal secretions, were due to faulty technic. With an improved technic which obviated contamination, pathogenic bacteria were not found, and, therefore, with Kroenig and Goener, he believes that auto-infection from this source is impossible; that when pathogenic bacteria are found in the puerperal uterus they have been introduced from without. He makes an exception incriminating the gonococcus, saying that this germ is found in the vaginal secretion and may extend from the cervix into the uterus and tubes during the puerperium. "Death," he says, "from puerperal infection is always due to infection from without and is usually due to neglect of aseptic precautions on the part of the physician or nurse." "Vaginal douches," he says further, "are not necessary and are probably harmful."

The last word on this subject has not been spoken. When we think of the possibility of a woman at labor having already an infection; when we think of the variability of the strength of the different infections; when we think of the possibility of a pus tube rupturing during delivery, of colon bacilli passing through the walls of the intestines, of the pelvic organs being infected from the appendix, we are impressed with the importance of remembering the exceptions to the above statement, be they ever so rare. When, however, we observe how rarely puerperal infection follows clean obstetrics, and how commonly it follows unclean obstetrics, when we compare the almost perfect results in well equipped maternity hospitals to-day with the appalling results previous to the aseptic period, we are impressed with the fact that the obstetrician should not seek too much consolation from the theory of auto-infection.

With the onset of infection we should remember that it is the infection which will kill the patient if death follows; that it is the inflammatory reaction that saves the patient if she lives. If no inflammatory reaction resulted the bacteria would overrun the body as they would a culture tube. No surgical operation would be safe without the bactericidal properties of the blood. An infection may provoke an inflammatory reaction in any portion of the vaginal wall, in any portion of the uterus, tubes, ovaries, urethra, bladder, cellular tissue, peritoneum, bowel wall or appendix. This may result in an exudate or it may result in pus formation.

When an inflammatory reaction walls off a certain area more or less completely, the infection may break through the wall and do further damage by reason of the virulence of the infection or the weakness of its resisting forces. The infective material under pressure will have much to do with its extending through the wall. If we can furnish a

ready outlet the bacteria and their products will pass in the direction of least resistance and their forces will be weakened.

The puerperal period, including abortion, is fraught with increased dangers, first, because of the increased opportunities for the introduction of infection, and second, because of the altered conditions found. The uterus, instead of being small, with its avenues for infection closed and cells healthy, is large and soft, with the avenues for infection open and many cells traumatized and degenerated, which furnishes a fertile culture medium. With the onset of puerperal infection we had best see that the uterus is free from foreign material. It should then be made as near as possible the size and consistence of the non-puerperal uterus. Ergot at once reduces its size and closes many avenues. One or more intrauterine douches may be given. Good authorities advise against intrauterine douches, while others recommend the single, interrupted, or continuous irrigation of the uterus.

For years I have used a solution of tincture of iodine, one teaspoonful to a pint of water, after infected abortion or delivery. The curette or forceps or finger is used to rid the uterus of foreign material, but not to attack the wall of an infected, acutely inflamed uterus. Sometimes hysterectomy is performed during acute active infection, but when this is done it should be with the distinct view of removing the infection in the uterine wall, rather than getting rid of an inflamed uterus. If the infection has invaded structures extensively outside the uterus, and if the patient is generally septic, we should fear lest the hysterectomy do harm rather than good. If we can determine that the infection will be largely removed by the removal of the uterus, and the patient's condition is such as to warrant so radical an operation, yet such as to enable her to undergo so extensive a one, hysterectomy may be permissible.

Nuclein and yeast have been given to increase leucocytosis, that a more effectual inflammatory reaction may be expected. The anti-streptococcus serum has been used, but this is still upon trial. Any localized inflammatory mass or abscess signifies infection within its borders and should be drained to prevent extension of the infection, and thereby we aid the inflammatory process.

Tubal infections are likened by some to appendiceal infections, but important differences exist. Appendiceal infection is often a mixed infection, containing virulent bacteria, which spread before a limiting wall of inflammation can be formed, and cause death. Tubal infection is frequently of gonorrheal origin and tends to progress more slowly and provoke a limiting wall of inflammation, which saves the patient's life but often destroys the tube. Occasionally the general peritoneal cavity is infected by the gonococcus because of the failure of the local inflammatory reaction.

The appendix is a useless organ, while the tube is an important one, which has an important bearing upon the treatment.

With the onset of a primary infection of the tubes and ovaries it should be treated conservatively to save the tubes if possible. With an acute tubal or ovarian trouble of some days' standing a radical operation

is not desirable, for infection will have extended beyond the tube. The limiting wall of inflammation will be broken down and some deaths will result. To save the patient's life or to shorten convalescence a drainage may be done by opening the abscess through the vagina or wherever it is most easily reached and drained. This aids rather than destroys the limiting process.

Chronic pus tubes should be removed radically through the suprapubic incision. With the onset of an acute attack of infection in old pus tubes an immediate radical operation may be performed. But should this be delayed until infection is distributed beyond the tube, drainage should again be chosen as the safer operation, if operation is required, and the radical operation should be done later. Two safe operations are to be chosen rather than one dangerous one.

Pus around the vagina, bladder, in the connective tissue or peritoneal cavity should be drained whenever found. Occasionally the radical removal of an acute pus tube may be advisable when it is pouring infection into the general peritoneal cavity. But we should always have in mind that we are removing it because it is the source of infection and not because it is inflamed. Occasionally also the pelvis may contain many areas of infection, so that drainage would affect only a part of the sources of the infection and a radical operation be called for during the acute attack.

#### THE RADICAL OPERATION.

The dangers of a radical operation are slight if this is done during the quiescent stage. But there is even then the danger of distributing infection in some cases. This danger is greatly increased during the acute or subacute stage. Adhesions and degeneration of the walls of the bowel, bladder or ureter may cause one of these organs to be opened, tearing of adhesions and the peritoneum and the breaking down of degenerated tissue may cause hemorrhage. To avoid these evils a fairly good sized opening should be made. One  $3\frac{1}{2}$  to 4 inches is usually sufficient. The abdominal contents should be carefully walled off from the pelvis before any efforts are made to separate along the lines of cleavage. The fundus of the uterus and the uterine ends of the tubes now present. The abdominal end of the tube and the ovary lie in the posterior cul-de-sac. The usual method consists in separating the tube from adherent structures and bringing it up before tying it off. The force that is necessary to work the fingers under the tube and separate it will frequently rupture the pus sac in the tube or ovary and distribute infection. While a chronic pus tube is frequently sterile, it is highly desirable to get it out intact. A subacute or acutely inflamed tube or ovary may be highly infectious and the danger is greatly increased. By working it out of the pelvis in this way we run great risk of tearing structures, opening viscera and causing hemorrhage.

The plan which I wish to present is to pick the tube up at the uterus where it first presents. It is there severed from the uterus by means of a V-shaped incision which removes every vestige of the tube. As we sever the tube from the broad ligament this is sewed by means



of an over-and-over suture. The ovarian artery is caught when the infundibulo-pelvic ligament is reached. The pus tube and ovary, if desired, is now severed from its natural attachments to the patient, but still lies in the posterior cul-de-sac, attached by adhesions. Now, while the covered uterine end is held in a forceps, mild traction is made; at the same time, with the finger or gauze, adhesions are pushed down and separated from the pus tube until it may be lifted out of the abdomen. The work at all times is under the eye. No force is necessary which would be likely to rupture the tube. It may nearly always be lifted out of the pelvis intact. If at some point a little leakage takes place when it is lifted out it is ready to be placed immediately in the specimen basin and does not have to be retained to be severed from its attachments. This method protects the bowel, the urethra and pelvic wall from lacerations in the best possible way.

There will be less necessity for drainage. The need of drainage will be determined in each case by consideration of the acuteness of the case, the probability of distribution of infection, the amount of oozing and degenerated tissue that will serve as a culture medium for bacteria, and injury to or degeneration of visceral walls.

Should drainage be required, it may best be carried out in some cases through the vagina and in others through the abdomen. Should abdominal drainage be decided upon it is well, in most cases, to make a counter opening for drainage at some distance from the abdominal incision. This materially lessens the chances of the development of a post-operation hernia. Should vaginal drainage be decided upon Haggard has given us an improved technic in his method of placing the drainage in the pelvis through the abdominal incision, closing the abdomen and then opening through the cul-de-sac after scrubbing the vagina.

In conclusion I would say:

1. Pelvic infection is a destructive process sometimes causing only mild disturbances and sometimes causing death with or without provoking a marked inflammatory reaction.

2. Pelvic inflammation is a protective process which may or may not save the life of the patient, according to the inflammatory reaction.

3. A pelvic inflammation has no power of self-extension, but tends rather toward repair.

4. Puerperal infections are usually due to the introduction of bacteria during or after delivery, but may be caused by the presence of germs in the vagina, cervix, pus tube or ovary, appendix, bowel or peritoneum, during delivery or the puerpera.

5. With the onset of puerperal infection all stitches should usually be removed and vagina and uterus determined free from foreign material with as little damage to the linings of these organs as possible.

6. During the acutely active stage of a pelvic infection the patient should usually receive non-operative treatment until it may be determined that drainage or removal of some organ will remove or decidedly lessen the source of infection. Then drainage, removal of the uterus, tube or ovary may be indicated.



7. The removal of acutely inflamed pelvic organs is not indicated for the inflammation *per se*.

8. Non-puerperal, non-operative, acute infection is usually but not universally of gonorrheal origin.

9. An acute primary infection of the tubes and ovaries should be treated conservatively in the beginning to save these organs.

10. During an acute attack of infection, if the patient is not doing well, drainage may be performed to hasten the convalescence or save the life of the patient.

11. Chronic pus tubes should be removed.

12. Immediately upon the lighting up of an acute infection in old pus tubes a radical operation may be advised, but should this be delayed until infection is distributed through the pelvis, drainage is more desirable if operation becomes necessary.

13. Two safe operations are always preferable to one dangerous one.

14. A radical operation should aim to make the least possible traumatism to tissue that are to be left and cause the least possible distribution of infected material.

15. To that end I commend the technic described above of severing the tube from its broad ligament and uterine attachments before a forcible effort is made to lift it out of the cul-de-sac.

#### DISCUSSION.

Dr. T. J. Watkins, of Chicago:—Mr. President, this paper covers so much ground that it is impossible to discuss it extensively. Dr. Barrett has given us an excellent paper.

In considering infection in the pelvis, one has to remember that intraperitoneal infections are somewhat different from infections in other parts of the body. The pus usually becomes sterile in one to three weeks, unless a secondary colon bacillus infection takes place. In no other part of the body do we get sterile pus in any large percentage of cases.

I disagree with the doctor relative to the drainage of acute ovarian abscesses unless they be the subject of a secondary infection. The reason for that is the bacteria and the toxins in the abscess are of comparatively little importance as compared with the bacteria and toxins that have extended beyond the abscess. The removal of such an abscess intact does not shorten or lessen the severity of the septic symptoms. Drainage operations very seldom result in cures. In the puerperal cases I believe it is bad practice to explore the uterus at all, unless there is a positive indication for so doing, and I believe it is conservative to say that this positive indication consists in the presence of hemorrhage or the presence of an offensive discharge. I believe there is a distinct difference between tubal infections and appendiceal infections. We should not confuse the two. In one the infection is apt to be of a more severe type than in the other. For instance, in the appendix the infection is a continuous one; whereas in a pus tube the infection is not continuous. The supply is limited. I believe drainage in these pus cases should always be vaginal.

Dr. Henry T. Byford, of Chicago:—The paper covers such a wide range that it is impossible to discuss it in detail, and, therefore, I will only touch on one or two points.

First.—With regard to the difference between appendiceal inflammation and inflammation of the Fallopian tubes, I think that, in the chronic cases with acute exacerbations, there is a similarity, and that the time will come when conservatism will have a place in the treatment of appendicitis.

With regard to the method proposed of cutting the uterine end of the tube

first in salpingectomy, I will say that there is no one method of operating for all cases. The doctor has said that surgeons usually begin by liberating the tube and ovary on the outer side. We do that more often because it is easier. We may not be able to get at the horns of the uterus in the beginning, and may even have to liberate both pus tubes and both ovaries before cutting. I think that the one recommended should be considered as one method among others, and the one to be pursued is the one which requires experience and knowledge of the exact conditions present.

With regard to operation after the acute attack, it has been said that sterilization of the pus usually takes place. That is true, and the best time to operate is not during the acute attack, but as soon after the attack as the pus has become sterile, viz., a short time after the temperature has become normal. The reason for operating soon after the acute attack is that there is then not as much organization of connective tissue as later, and we can separate the parts with less hemorrhage and injury to the surrounding tissues.

Dr. A. Belcham Keyes, of Chicago:—I wish to compliment Dr. Barrett on the wide range of his paper, and I would say that in every case that is prepared for a laparotomy preparation should be made both for operation by the abdomen and operation by the vagina, as so many times have I seen men operating through the abdomen who have been compelled to do work through the vagina, even if only to drain by that way, when they had not made preparation for so doing in the first place, thus interfering with the prospect of recovery.

There is another point that I wish to speak of, and that is with reference to pus. Pus is pus, and if we will read Koenig's work on pus in the pleural cavity we will convince ourselves most decidedly that it is very hard for us to judge if the pus under the naked eye is virulent or sterile. We know that the gonococcus does not live very long, and dying early, making it comparatively safe to operate in purely gonorrheal cases without drainage. However, I believe that the dictum, when we are in doubt as to whether pus is virulent or not, it is a good thing to drain. I have followed that practice for many years, and I feel it is important to remember that we are unable to judge of the virulence of pus in the individual case that we have under operation at the time.

I feel that Dr. Barrett has brought forward many things for our reasoning and thought that have been pushed aside by medical societies and considered as old matters. But I assure you, if you go over the statistics of deaths from tubal disease, you will be utterly astonished to find that the death rate even to-day has not been much lessened in the last four or five years under our improved technique, although we are making a better showing each year. These small points are most important.

I believe cases of gonococcus infection can be operated on in the acute stage with little or no danger; but can we say the same if it is a mixed infection? I have operated on cases of pus tubes with my heart in my mouth, so to speak, fearing that the patient would have a general peritonitis, but there was no more reaction than there would be in any ordinary clean case, but this proves only our inability to judge the character and virulence of the pus.

One word more. Sterile pus in very large pus tubes is very frequently tubercular. Hofmeier has called attention to the fact that we did not have true pus micro-organisms to deal with in most of these cases, but tubercle bacilli or spores.

Dr. Barrett (closing the discussion):—There are very few points I care to make in closing the discussion, except to speak of what Dr. Watkins has said in regard to the drainage of acute infections. I tried to make it plain that the acute infections should usually be treated non-operatively, if the patient is doing well. If the patient is doing badly, going from bad to worse, and the patient's pelvis is full of infection, the patient is going to die in some cases, not in all by any means, as the gonorrheal infection will be limited by the inflammation in many cases. But sometimes we will save a patient's life by drainage, whereas a radical operation at the time would be unsafe. Drainage is very little tax upon a patient; it gets rid of the infection; it can be done usually under local anesthesia, or, if the

patient is in a bad condition, so that the anesthesia will be an important element, it can be done without any anesthetic and the source of infection got rid of in that way. I believe that there will come a time, and not long hence, when there will be a tendency to drain these cases of pelvic infection and let the accumulating pus out early, not waiting in the acute cases for a chronic condition, with the patient having several weeks of invalidism.

Dr. Byford speaks of the points of similarity between appendicitis and pus tube. I do not think there is much disagreement between him and Dr. Watkins. There are points of similarity and points of dissimilarity between appendicitis and pus tube. One point of dissimilarity is this, that with the onset of an acute infection in the tube we are dealing with an organ that is important to some of the functions of that patient; whereas with the onset of an acute infection in the appendix we are dealing with an organ which, while it might have gotten well without an operation, has left the patient none the worse for its removal. Another difference is, an appendiceal infection tends in a percentage of cases to extend through the peritoneum without a limiting wall forming and with death following. An acute infection of the tube is most often of gonorrheal origin; the reaction tends to form a limiting wall, and, therefore, the infection does not cause death in so large percentage of cases. Some one has said that an acutely inflamed tube may be removed. Yes, an acutely inflamed tube may be removed if gonorrheal infection is present. It is not that the operation is so dangerous in the beginning of the gonorrheal infection, but we are dealing with a tube which has a function, instead of the appendix, which is functionless, a point we should bear in mind. In the primary attack it is well to save the tube if we can. With the onset of the acute attack in a chronic pus tube, we will not be able to save the tube because it has already been destroyed; it ought to have been removed before the attack and may now be removed in the beginning of the attack. If this is done we will save the patient much time in convalescence.

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## HYPEREMESIS DURING PERIOD OF GESTATION.\*

E. M. MINNICK, M.D.

MOLINE, ILL.

Nausea, or morning sickness, in its various degrees of intensity has been known undoubtedly beyond the memory and recorded history of man. In the severer forms of vomiting the physician's advice and assistance has been too often neglected for the comfort of the mother and the future welfare of the offspring.

Williams, of Johns Hopkins, has given the subject of pernicious vomiting in pregnancy a prominent place in his obstetrical investigations and contributions to medical literature. Guenoit and Anguetin observed the severer forms of hyperemesis, and Oribasius and Paul, of Aegina, who seemed not to have realized that they might result fatally, have described them. Some writers have expressed themselves that a sick pregnancy is a safe one. As far as is known Simmons in 1813 seems to have been the first to induce abortion for its relief, others following his teaching and example.

This procedure was discussed at the Academy of Medicine of Paris in March, 1852, when Du Bois and Danyau contended that the treatment of such cases was not only necessary but instigated in all critical cases. Du Bois supported his contention by discussing fourteen cases in

\* Read before the Fifty-Seventh Annual Session of the Illinois Medical Society, May 21-23, 1907.

his experience, ten of which died without operation, abortion being produced in the other four. Only one of the latter recovered. From his experience he declared abortion was the reasonable treatment and should be conducted before the mother's condition becomes desperate.

Indicated under the following conditions:

1. When vomiting is incessant.
2. When emaciation is rapid and the patient so weak as to be confined to her bed.
3. When she faints upon the slightest exertion.
4. When pronounced alterations occur in her features.
5. When there is marked and continuous fever and an excessive acidity of the breath which can not be relieved by treatment.

Gardner stated that pernicious vomiting occurred in 15 per cent. of his cases, while Giles, Gerst and Howitz noted 47 4/5 per cent., 66 2/3 per cent. and 84 per cent. respectively in their cases.

The last three percentages seem rather high, but we know that some practitioners seem to meet with more complicated cases than others; especially is this true in a large consultation practice, and then these statistics may include mild forms of emesis. Certainly the experience of these obstetricians is sufficiently large to demand research in this field of medicine.

#### ETIOLOGY.

1. Toxemic. a, Intestinal; b, Hepatic; c, Ovarian; d, Renal.
2. Reflex.
3. Neurotic.

#### TOXEMIC.

*a. Intestinal.*—It is a well known fact that many of the tissue destroying toxins are produced in the intestinal canal or gastrointestinal canal. It demands the careful attention of the physician to learn the exact condition of this tract. The amount and kinds of food digested, assimilated and waste products eliminated. In fact a thorough knowledge of dietetics is almost indispensable to the obstetrician.

One of the earliest theories was that of Mauriceau, contending that the cause of vomiting during gestation was humors, brought about by the suppressed menstruation.

Fischl, in 1884, recognized this toxic condition in a woman who had been admitted to the hospital. He found a slight fever and a densely packed colon. A speedy recovery followed the evacuation of the impacted colon.

Lindeman, in 1892, reported the postmortem findings in patients of Solowieffs, death resulting from multiple neuritis, complicated with pernicious vomiting. The histologic findings were those of a parenchymatous neuritis, with fatty degeneration and cloudy swelling of the liver and kidneys. As corresponding findings were observed in the fetus, he concluded that the same lesions could only be produced in mother and child through the circulation of some toxic matter.

Dirmoser, in 1901, condensed his findings in a monograph, and two years later gave his investigations in another paper, attempting to show



that women suffering from hyperemesis of pregnancy gave an increase in the amount of uric acid skatoxyl, indoxyl, aromatic sulphates, phenols and nucleo-albumins; often the abnormal materials, diacetic acid, acetone, uribilin and peptone were observed in the urine examinations. He then concluded that the taking up of these toxic substances originating from the decomposition of the carbohydrates in the stomach and the proteids in the intestine, finally circulating in the blood, produced neurosis and then emesis followed.

Ehrlich, disregarding this theory, attempted to prove the cause of many of the abnormalities of gestation were brought about by fetal matter obtaining direct access to the human blood, which was speedily rendered innocuous, and only when large amounts were produced in the system was it no longer capable of eliminating such toxins and accordingly cystotoxins were formed, these developing lesions in the organs of the mother and in turn causing hemolytic changes in the blood.

Behm reported to the Berlin Obstetrical Society that he had secured good results in a number of cases of pernicious vomiting by the use of copious rectal injections of salt solution, and maintained his experience showed the toxic source of the vomiting. He recognized Viets' syncytio-toxic theory wholly and reported the excellent results obtained after the use of saline solutions might be accounted for by concluding that it washed out of the blood the toxic material that had secured access, after the introduction of increased amounts of fetal substance into the maternal blood.

*b. Hepatic.*—Cases of jaundice and one of acute yellow atrophy have been reported and confirmed by autopsy findings. Acute yellow atrophy of the liver generally occurs during the second half of pregnancy, particularly after the seventh month, while fatal cases of vomiting are more frequent in the first half of the puerperal state.

Our knowledge of the liver during pregnancy has shown it to be subject to abnormal conditions in many instances, as is clearly apparent by the occurrence of epidemics of catarrhal jaundice. Within the last hundred years many of these epidemics have been reported in which a large number of inhabitants of certain localities were affected with this disease. Under such conditions the jaundice ran its ordinary course in men and in non-pregnant women. However, in pregnant women it proved remarkably fatal, as more than one-half of the pregnancies ended in abortion or premature labor, many of the women dying in coma and occasionally in convulsions. The most important of these epidemics are those reported by Kereksig in Lindenscheid in 1794, Bardinet in Limoges in 1859, Saint Vel in Martinique in 1861, Meunier in Paris in 1871, Smith in St. Paul, Minn., in 1873.

In this connection it is well to remember that gestation itself many times may be the etiological factor present in the jaundice, being illustrated by the fact that many women suffer with jaundice during each pregnancy. It has been reported in a few instances of recurring in from four to six successive gestations, being associated frequently with hemoglobinemia and hemoglobinuria. There is on record an instance of this tendency occurring in two sisters.

Other offices of the liver are more or less interfered with during gestation. Payer pointed out that glycosuria is produced in 80 per cent. of all pregnant women. In guinea-pigs a large amount of glycogen has been found during gestation, not being so pronounced at other times.

Pathologists have suggested that the pregnant condition renders more difficult the storing of any considerable amount of glycogen, so that a large amount of sugar ingested instead of being changed into glycogen is thrown off and not accumulated for future use. If this theory is accurate it accounts in a reasonable manner for the appearance of all alimentary glycosuria. Since Schmiedeberg and Schroeder pointed out that ammonia was a predecessor of urica and was changed into it in the liver, it has been taken for granted that any course hindering its complete oxidation has a tendency to increase the ammonia excreted and a like decrease in the urea output. Other investigators have gone farther and proved that the real harbinger of urea is ammonia carbonate, which by oxidation is converted into urea.

The natural inference then is that the necrotic areas found in the liver hinder complete oxidation of the nitrogenous matter and bring about an increase in the ammonia coefficient at the cost of the urea. This is analogous to the findings in acute yellow atrophy of the liver and in phosphorus poisoning, both presenting a distinct destruction of liver tissue, together with a very noticeable increase in the ammonia coefficient.

However, it is quite likely that the relation between the liver changes and the high ammonia coefficient is not direct, and the increased ammonia secretion is not essentially a sign of degeneration of the liver tissue, but may point to an increased amount of acid products which have been freed in the circulation, but the neutralization of these is necessary if life is to continue.

Some authorities believe this condition exists in acute yellow atrophy and phosphorus poisoning, also that the explanation of toxemic vomiting in pregnancy is thought to be caused by similar conditions.

We know that in some cases of toxemic emesis during gestation there is a distinct interference in metabolism, which is shown by an increase of the ammonia coefficient. However, it is yet to be proved whether the change is brought about by inability of the diseased liver to fulfill entire oxidation or if it is an evidence of an acid intoxication or some other condition. As yet we are wholly ignorant concerning the character of the toxic material with which we have to deal, whether or not it be derived from the mother or fetus.

Several years ago a case came under my care in a woman whose first pregnancy occurred at about the age of 40. After the sixth month of gestation, constipation became very pronounced, with light colored stools, a dark colored urine of high specific gravity containing the bile derivatives was noted.

Laxatives and occasional chologogues only partly relieved this condition. During the last eight weeks of her pregnancy she developed a pronounced dermatitis over all parts of the body covered by the clothing. It was attended with intense itching, the skin was excoriated and bleed-

ing from almost constant scratching. Local sedative applications gave only partial relief to the irritated and inflamed skin.

Her labor proved to be an easy one and was quickly terminated. The child was extremely icteric and the placenta was stained dark green, showing large deposits of bile extending even throughout the cord. In a few days the itching and inflamed skin assumed its normal state; however, at the end of two weeks the patient developed a mild form of abdominal ascites, which persisted for some three months.

My experience has shown that women who become pregnant for the first time near the age of 30 and later are more prone to jaundice, constipation and disturbances of the function of digestion and assimilation than those who become pregnant at an early age. In fact, most young mothers enjoy good health during and following the period of gestation, with the exception, of course, of those who have become infected with the specific diseases.

*d. Renal.*—Ewing has stated that the conditions producing acute yellow atrophy and eclampsia are manifestations of the same toxemia; however, most obstetricians of note have strongly opposed this theory.

Eclampsia is generally preceded by pronounced pre-eclamptic symptoms, indicating a renal and circulatory disturbance giving a diminished amount of urine containing albumen and casts with edema. In pernicious vomiting the urine is practically normal in quantity until shortly before death, this being, of course, in accordance with the amount of fluid taken. In hyperemesis, albumen and casts only appear during the final period of the affection, while edema is always absent. Chemically the amount of nitrogen and urea is markedly decreased in eclampsia, and changes in the ammonia coefficient appear only to a small degree. While in vomiting the amount of nitrogen may be almost normal, on the other hand the ammonia coefficient is high in the majority of cases.

Pathologically eclampsia gives a lesion of hemorrhagic necrosis existing in the portal spaces depending on the thrombotic process in the small portal branches, confined at first to the portal spaces; as they enlarge they extend to the lobules from the periphery toward the center. They are so marked that their existence permits of diagnosis of eclampsia without a clinical history. The lesions following pernicious vomiting are degenerative conditions, commencing about the central vein of the lobule, extending slowly toward the periphery. Pathologically the changes are distinctly marked, not easily confused one with the other.

Under the classification of renal lesions, tumors, cysts and tuberculosis of the kidneys must be taken into consideration, although such cases are rare and do not fall within the scope of the practice of every physician.

#### REFLEX.

Reflex vomiting may be due to abnormalities existing in the reproductive tract or ovum, this having taken place before the period of conception. Reflex hyperemesis may be caused by the following conditions:

- a. Abnormalities of the uterus, particularly displacements.
- b. Cases of endometritis.

c. Ovarian tumors.

d. Abnormalities of the ovum such as hydramnios, hydatidiform mole and certain forms of twin pregnancy.

Reflex emesis was well known among the early obstetricians. Mauriceau attributed it to sympathetic causes manifested between the stomach and uterus, believing direct nervous association existed between the two organs. Uterine displacements were first discussed fully by Graily Hewit pointing out many cases where a prompt replacement of the organ relieved the vomiting. He was undoubtedly mistaken when he stated that antelexion had a more pronounced effect on this condition than retroflexion.

Hyperemia of the uterus, its impaction in the pelvis with existing adhesions and various inflammatory states of the organ have caused disturbances of the digestive tract through reflex association.

Rigidity of the cervix and especially of the internal os have been mentioned as causes of pernicious vomiting, but at the present time these conditions are not accepted by most authorities.

Endometritis has undoubtedly been a partial factor in producing emesis of the gravid state, particularly if specific inflammations complicate the pregnancy.

Ovarian tumors may cause, and quite likely aggravate, the vomiting. Several cases have been reported where the removal of small ovarian tumors has caused the cessation of the existing emesis. The same may be said of hydatidiform mole and twin pregnancies.

These manifestations are not easily explained. The emesis may be caused by the increased extension of the uterus or it may be ascribed to a toxemic condition due to faulty metabolism either on the part of the mother or the child, or the production of excessive amounts of fetal excretions in the maternal blood.

#### NEUROTIC.

I believe this form of hyperemesis is often only a manifestation of some lesion that must be diagnosed to treat the patient successfully.

Anguetin and others of the early obstetricians recognized the mental, moral and neurotic factors as having a distinct influence during pregnancy. Others claiming that severe vomiting may be due to neurotic or hysterical origin, and it was not until Kaltenbach presented his paper before the Berlin Medical Society that general attention was directed to this phase of the subject. He claimed that many manifestations of pregnancy of neurotic origin, allied with hysteria, depended on previous conditions of this character and were only aggravated during gestation.

A fellow practitioner not long since reported a case observed by him that proved to be almost entirely neurotic. A young married woman who had been suffering intensely from nausea and emesis with no response to medication, was finally induced by the attending physician to enter a hospital. It was noticed that she ate very sparingly of the hospital fare prescribed. Her nurse became suspicious and during the absence of the patient from her room instituted a thorough investigation, which resulted in the finding of a number of bon-bon boxes.



Her physician decided on an operation for dilatation of the cervix. Following this operation, with the diet allowed, the vomiting was promptly relieved and she completed her term of pregnancy without other untoward symptoms.

#### SYMPTOMS.

The gradation between plain morning sickness and hyperemesis is gradual and makes it extremely difficult to give a satisfactory definition of the affection under discussion.

We are indebted to Du Bois for the classic picture of this form of severe emesis which he divided into three stages. In the first the constant hyperemesis is associated with dribbling of the saliva, with a quickening pulse and a highly colored urine. In the second stage the emesis becomes still more intense, emaciation very marked and the breath gives forth an unusual acid or fetid odor; as the patient becomes worse there may be a slight rise in temperature. The third stage appears with an evident cessation of symptoms for a short period, in which the vomiting ceases or diminishes. Unfortunately this is of short duration and the patient quickly passes into delirium or coma, perhaps with convulsions. This condition gives little if any hope of recovery.

Williams declares the clinical picture given by Du Bois can not always be followed at the bedside.

#### DIAGNOSIS.

Pernicious vomiting, as cited previously, should be diagnosed whenever the emesis becomes so severe that the patient is unable to retain any considerable amount of nourishment, or has reached a low stage of vitality. Very important is the necessity to determine whether or not it is of a reflex, neurotic or toxemic variety, which is a pronounced factor in the treatment of this affection.

A careful vaginal examination should be sought to decide if it is of uterine origin. An ovarian cyst or a pelvic inflammatory mass may be present, while an unproportionate increase in the size of the uterus suggests a hydramnios, hydatidiform mole or twin pregnancy.

An endometritis is exceedingly hard to diagnose positively, but should be suspected, if a history of this affection before the onset of pregnancy can be obtained.

When a dark discharge is seen issuing from the cervix a spontaneous abortion is to be expected.

A careful examination of the urine is essential and if possible the determination of the ammonia coefficient. Unfortunately this procedure requires the services of an efficient chemist and can not always be done by the attending physician.

Williams reports a case which did not seem seriously ill, with an ammonia coefficient of 16 per cent., enabling him to make a diagnosis of toxemic origin. Forty-eight hours later abortion was performed. At this time she showed an ammonia coefficient of 46 per cent. Coma and delirium rapidly followed, the patient dying in coma seventy hours after operation.

I wish to emphasize the importance of a careful examination of the

urine and stools in all of these cases of hyperemesis. Look for ammoniacal, albuminous and bile products in the urine. In the stools the lack of the bile components giving the light colored and perhaps sour stool, with the presence of undigested food and fermentation products, speaks for the retention of bile.

These findings appear as secondary manifestations to the already described symptoms and aid in making the diagnosis more positive.

The following cases have been observed in my experience:

CASE 1.—Mrs. W., a woman about 36 years of age. She has two living children and gives a history of one abortion, which was induced by a physician in the community where she formerly resided. She at that time was suffering from an attack of illness similar to the one about to be described.

When I first saw the patient she had been vomiting about a week or ten days almost incessantly. She was pale, emaciated and her features noticeably pinched. A slight eruption on the face suggested imperfect elimination of the uric acid.

The patient had, during the time since the onset of the emesis, been dieting and using some home remedies.

After several days of medication, with no relief from the vomiting, she submitted to a vaginal examination. A lacerated perineum, a torn cervix, with marked ulceration along the lacerated edge and a marked retroversion of the uterus, was diagnosed. The uterus was tender, and any considerable pressure over the hypogastric and left inguinal region caused pain.

The following day abortion was performed, and the patient made a rapid and uneventful recovery.

CASE 2.—Mrs. D. Patient was about 37 years of age. Has been afflicted with a marked chorea since early childhood. The facial and sterno-cleido-mastoid muscles were in frequent agitation. This affection was aggravated during her fifth pregnancy. The hands and arms at times entered into the choreic movements. During the third, fourth and fifth months of this gestation the patient suffered from nausea, experiencing an aversion for certain foods and passed restless nights. Bowels were constipated and the urine was of low specific gravity. During the fourth and fifth months of her pregnancy a marked anemia was observed.

The patient was advised to follow a carefully selected diet, and laxatives and diuretics were administered with good results. A prescription of cod liver oil with bitter tonics was also prescribed.

The sixth to ninth months of gestation were fairly comfortable ones and the labor was completed without any untoward symptoms. The patient, however, was several months regaining her usual vitality.

The child was not apparently well nourished, but enjoyed good health up to the sixth year, when, on entering school, pronounced choreic symptoms developed and have continued in a more or less degree of severity up to the present time, with a marked tendency to assume a chronic form similar to the mother's affection.

CASE 3.—Mrs. K., a woman about 30 years of age, who has two living children, giving a history of considerable nausea accompanying the second pregnancy and lasting until the time of actual labor. This prolonged emesis produced much emaciation and lowering of the patient's vitality, and she recovered her strength after this labor rather slowly.

Less than a year following this confinement, she again became pregnant, vomiting commencing about four weeks after conception. A voluntary expulsion of the fetus occurred at about the eighth week, attended with little pain, no physician being called.

Some fifteen months ago she again became pregnant. Nausea and vomiting ensued and were not relieved by medication. Examination of the stools showed them to be clay colored and passed in small, hard lumps. The urine was dark colored. Examination revealed the presence of bile products and it emitted a distinct ammoniacal odor.

Five days following my first visit I was again called and found the patient in

the pains of labor, which continued strong for about three hours, then ceased almost entirely. Patient became faint, numb and an intermittent pulse was detected. Brandy was administered and abortion completed under chloroform. An hour following the operation the patient complained of intense hunger. A piece of dry toast, a poached egg and a cup of tea were taken with relish and retained.

Owing to the anemic condition, some few weeks passed before her accustomed strength returned. After recovery an examination revealed an aggravated form of endometritis, which did not improve under local treatment. Patient refused to submit to an operation to relieve this condition.

CASE 4.—Mrs. B., an anemic woman about 32 years of age, with an expression somewhat pinched, gave the following history: A severe labor at her first confinement, resulting in a slow recovery, and has not felt as well and strong since.

The second pregnancy was accompanied with undue nausea throughout the nine months of gestation, and the patient remained weak and emaciated for several months after this confinement.

The third pregnancy was again attended with nausea and emesis succeeding the first month of gestation. This pregnancy terminated in a still-birth between the sixth and seventh month. The fourth pregnancy produced the same nausea and vomiting experienced hitherto and resulted in an abortion at about the third month.

The fifth pregnancy, occurring about a year and a half ago, was attended with a very similar course of vomiting, commencing at the time of expected menstruation, after this conception and continued some eight or ten weeks.

After the third week of vomiting the patient was confined to her bed part of the day. During the fifth and sixth weeks she was unable to leave her bed, retaining scarcely anything except diluted brandy. A vaginal examination revealed a lacerated perineum, a lacerated cervix, with ulceration along the torn edge. Considerable mucus discharge seemed to fill the cervical canal. Several treatments, consisting of vaginal douches and medicated tampons, were used without any apparent relief of the hyperemesis. The bowels were constipated and the urine was low in specific gravity.

During the sixth to eighth weeks the patient appeared very pale, showing marked emaciation. Morning pulse was 42 to 47 per minute, while the evening pulse registered 50 to 58. Faintness was experienced on the slightest exertion. Sleep was somewhat broken, and the patient felt extremely exhausted in the morning.

At this time permission for operative interference was obtained. Chloroform was administered. Dilatation of the cervix was commenced, when the respiration and pulse became slow and signs of cyanosis noted. Completion of the curettement was deemed inadvisable. Cervical canal was dilated and the vagina packed and the patient returned to bed in a warm pack.

The following day buttermilk and a small amount of light food was retained. In two weeks the patient was able to leave her bed, but unfortunately resumed her household duties too soon and vomiting again ensued.

Patient was this time taken to the hospital, where rest in bed with tampon treatment and careful dieting relieved the emesis, so that in ten days she was able to return to her home. The local treatments were stopped for several days, and on again being called to see the patient found the vulva swollen and red, attended with intense itching. Local treatments relieved this condition, but not before an aggravating urticaria had developed over the body. Following this attack the patient enjoyed a very comfortable condition during the remaining months of gestation and completed an uneventful labor.

#### TREATMENT.

The treatment of cases accompanied with pernicious vomiting during the gravid state can not be discussed and described collectively, owing to the number of varieties of this affection and the individual needs presented in almost every case with which the physician is confronted.

We must not forget that the mother must eliminate for two living beings.

A few general rules may be given for the care of these cases.

A careful selection of diet should be adhered to, choosing those foods which will provide nourishment and in return tax the organs of elimination to the least degree of severity.

Regulation of the bowels and an increased activity of the kidneys may be aided by diet and the free use of liquids other than alcoholic.

Occasionally lavage of the stomach with a weak bicarbonate of soda solution may be beneficial, especially if mucus from a catarrhal gastritis be present. Always in extreme cases resort to rectal feeding and the normal salt enema, or in extreme need an infusion of salt solution to tide over any condition which may prove only of short duration.

A corrected position of the uterus by use of the tampon or pessary may be the means of relieving some cases of misplacement.

Nervous patients where the means and strength will permit of a change of scene often experience speedy relief from hyperemesis. Others respond to rest in bed and a well-selected diet.

As a stomachic sedative I have found nothing equal to the colorless fluid extract of hydrastis in doses of 3 to 6 minims combined with the elixir of lactopepsin. These measures failing, it is best to empty the uterus of its contents, that death from starvation or toxemia may be prevented.

In toxemic cases, abortion is almost always indicated and should be performed promptly while the patient has sufficient vitality to recover from the operation.

#### DISCUSSION.

Dr. Bertha Van Hoosen, of Chicago:—Mr. President, I think this subject should receive the very careful consideration of the medical profession. Cases of Cesarean section are not very common; but cases of emesis in pregnancy are so common, I think, that the general tendency is to let the woman suffer, on the ground that, in all probability, she will not be relieved. The idea is that these patients must be given time to get over it. One of the peculiar things about the pregnant condition is that women who have nausea in the second and third months find that it is hard to control. After that period it can be relieved. When it comes to full-term pregnancy, the patient is not usually disturbed, even by the vomiting after the anesthetic. I think nearly every one who has had considerable experience knows that we can give a woman, who has had forceps applied, chloroform for two or three hours continuously, and yet she will not be troubled with any nausea or disturbance from the anesthetic, and even though she has to undergo a secondary operation there is no trouble. I had a talk with Dr. De Lee as to what he thought about nausea and vomiting following Cesarean section, and he said that he had not thought about it; that it never figured in the case at all. In trying to find out what differences there was between a woman at full term and a woman under ordinary conditions, I came upon a series of experiments conducted in Germany, in which cases the alkalinity of the blood was affected. In practically all cases the alkalinity gradually increased from the beginning of pregnancy until full term, then it decreased from that time, for a week or ten days, until it practically became normal again. Following this idea, I tried to produce artificially this alkalinity in the blood before operation. Before operation the patients were not to have an anesthetic, and I felt in many cases I succeeded in reducing the alkalinity of the blood. Following this idea, I thought perhaps that if this alkalinity could be induced a little sooner, during the second



and third months, we might avert much of the nausea of pregnancy. Accordingly, I gave the patient bicarbonate of soda in half a pint of water by the colon, three injections of this kind being sufficient to render the urine alkaline, and by giving some alkaline agent internally, such as sulphate of magnesia, or something of that sort, I found that the patients in a number of cases were quickly relieved of the nausea and vomiting. My conclusion is that anything which will favor that elimination will help to relieve the nausea and vomiting.

Dr. Minnick (closing the discussion):—I want to mention one point in connection with vomiting. In some cases of vomiting you will find on careful investigation that the patient has gastric inflammation, or a catarrhal gastritis, and in some instances washing out the stomach with a mild bicarbonate of soda solution is efficacious. Teach the patient to take, if she will not submit to this, a little alkaline hot water before breakfast, or add some such thing as that to the treatment. You will find, I think, better results from your diet, and especially should you urge the patient to take a large amount of fluid other than alcoholics, so as to promote the elimination of these poisons. You have to remember that the mother has to eliminate for two living beings. This taxes her organs, and the increase of fluids will help to wash out the system and to get rid of the extra amount of poisonous material that is thrown off by these two living beings.

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## EDUCATION OF PHYSICIANS AND THE PUBLIC REGARDING INSANITY.\*

FRANK PARSONS NORBURY, A.M., M.D.  
JACKSONVILLE, ILL.

In the evolution of society, one of the foremost problems which early confounded philanthropists and other social workers was the care of the insane. The medieval ideas with their mysticism, demoniacal possessions and a host of other gross superstitions surrounding the insane, were first to be met and overcome. And, as nothing in the way of medical thought existed whereby an attempt could be made to bring order out of this chaos, it remained for some one imbued with the true spirit of scientific inquiry, as well as philanthropic forethought, to undertake this seemingly insurmountable problem. We know that when great problems are to be solved and great emergencies to be met, there is always some one called, providentially, to answer the emergency, and so it was here, in the person of Pinel, of France, who with practical knowledge, courage and foresight and "happily for the insane world," created the revolution in the methods of treating a neglected and misunderstood disease, the effects of which were as remarkable as the contemporary French revolution in the government of sane people. When we think that just a little over a century ago this great man brought about this revolution and laid the foundation for our modern ideas of the care and treatment of the insane, we must place him among the foremost in the temple of the world's famous physicians.

The humane instincts, the noble and courageous work which prompted and crowned the efforts of Pinel, soon had their effects in creating other similar experiments, based upon the same noble inspiration, and as a result Tuke, in England, founded the York Retreat, from which eventu-

\* President's Address, delivered before the Illinois Conference of Charities, Twelfth Annual Meeting in Jacksonville, Oct. 9, 1907.

ated the great movement in England, of awakening into the full light of civilization, the all-prevailing truth, which to-day is recognized in all civilized countries, "that the unsound mind, like the unsound body, can only be regarded as an instance of disordered function; and that, however grave the disorder, the functions are still there, and may be roused into more or less healthy activity by exactly the same physiological stimuli and motives as are available in health." We can imagine with what zeal and earnest endeavor these early workers proceeded to educate, first of all the physicians, and next the populace, regarding the needs of the insane. It is no wonder that the clinical study of mental diseases was slow to be recognized; for it is an obvious fact that educational problems which are epoch-marking in their solution, require in order to become established, time, endless patience and persistent endeavor. We must remember that there were social, political and religious influences then, as now, perhaps more intense and vituperative than to-day, but existing in a social atmosphere not so philanthropically disposed as in this, the twentieth, century. These influences conspired to hold in check clinical inquiry, and Pinel then, as frequently is the fact with superintendents of to-day, had first to get permission from the political powers that existed before he could even take a step toward advancing the cause of a single insane patient.

I will not burden you with the history of this revolution further than to say it has been slowly but steadily a movement characterized by developing scientific knowledge and broad humanitarian spirit. As we note the progress of the study of insanity purely along educational lines we find that it has closely followed the divisions which Janet gives in the study of hysteria,<sup>1</sup> viz.: first, a period of anecdotal recital; second, the clinical period marking the latter part of the nineteenth century, and the third, which is quite contemporary, the psychological, now prominently led by the German school of which Kraepelin is the chief exponent. This evolution in its modern conception shows that there is no department of medicine in which the investigator needs to be more in intimate touch with the advances of modern science than in the study of mental diseases. It further and emphatically endorses Bain's dictum,<sup>2</sup> "that a subject should not be presented to the pupil until all the preparatory subjects have been mastered." And when we consider of what these preparatory subjects should consist and the methods of their study and investigation we will find that they are the biological sciences and must be pursued with the same methods, the same diligence and exactness as characterize success in all scientific studies.

This is true, however, of all real educational progress, and to attain the ultimate aim and purpose of education, which James Mill says "is to render the individual as much as possible an instrument of happiness, first, to himself and next to other beings," we must attack the problems before us with these noble ends in view. Our greatest problems regarding the insane to-day are educational and they involve not only the needs

1. Harvard Lectures, 1906.

2. Education as a Science, p. 8.

of the insane themselves, but the duties which the state and the public should discharge toward them and to the hundreds living and unborn who are to be their successors. Let us not forget that we have the insane with us always. We have had since history began and we shall have so long as man shall inhabit the earth. Yes, even if to-day all insanity were blotted off the face of the earth, ere to-morrow's sun went down, new cases would appear, because man through the very constant laws of evolution and dissolution is subjected to the biologic law of the survival of the fittest, and insanity is one of the channels through which this law works.

To meet these educational problems, we have two avenues to consider through which we hope to reach the ultimate aim of our purpose: First, by extending the clinical knowledge of insanity through the improved education of the medical profession, and, second, through popularizing our present knowledge of insanity, so that it may reach the public and be understood and appreciated by the people. Education is a public safeguard, and it is the duty of the medical profession to provide, through its channels, all possible knowledge to fortify against the inroads of mental disease. Medicine has, through its brilliant research work, in the study of infectious diseases, added years to the public health, saved thousands of people from premature death and extended the commerce of the world beyond computation. Medicine to-day, in other avenues of research, is adding to the peace, comfort and welfare of the people, notably in the study of diseases of metabolism (nutritional diseases); in this line of inquiry, I believe, we see a future in solving many of the mysteries of mental diseases heretofore misinterpreted and consequently illogically treated. The recent work of Bruce, of Robinson and others sustains me in this hope. With the results thus attained and promised, I further believe, perhaps I am an idealist and hope for too much, but I do believe, the people stand ready and willing to have presented to them in practical form the knowledge of insanity which exists to-day and they will cooperate in solving the problems with this knowledge, just as they have in solving the problems of tuberculosis, yellow fever, malaria and smallpox. They await for the medical profession to inform them, and it is, therefore, incumbent upon this profession to qualify themselves in order to teach the people.

The trouble in the past and even now in our schools in the education of physicians regarding insanity has been and is the want of clinical opportunities in the medical schools, and save for a few of the larger schools situated in cities, where access could be had to detention hospitals, it was, and really is, now the rarest thing for a clinical lecture to be delivered on a mental case. Consequently the average graduate of the past never came in contact with a case of insanity, knew little of even the principles of insanity, for usually only a few lectures were delivered, and they, in their didactic dryness, seldom appealed to the real wants of the students. In a great measure, this criticism still exists, for marks in mental diseases in many of the schools are not among the necessary credits for graduation.

Think of it, this department of clinical medicine which requires in its practice more real all-around knowledge of man and his diseases than any other, is shelved for the want of opportunities to present its needs. No wonder physicians are uninstructed; no wonder the anecdotal knowledge is the only knowledge which the average physician in general practice possesses of mental diseases. No wonder the public knowledge of mental diseases is the remnant of "Bedlam" as displayed in the lay press, both in its columns and its cartoons. No wonder a morbid curiosity is created when superficial generalizations go for scientific deductions, and haphazard diagnoses and useless statistics choke real intellectual and collective investigation, all for the want of real opportunities for study and inquiry.

Fortunately, there is a dawn of a better day for clinical psychiatry, for while certain schools and hospitals have long given lectures, others have not, and only recently, I believe that I may say, especially since the Council on Medical Education of the American Medical Association began to be a power in the advancement of medical education, has the clinical chair of mental diseases become more than an ornamental appendage to some other chair and is now coming into its own as a factor in real education—education for a purpose. Many medical schools, I have learned since I have become interested in the work of medical education, have to be driven into line, and even then, like the horse, "we may lead him to the trough but we can not make him drink."

It is a pleasure, a real intellectual treat, to see now and then in the medical schools in smaller medical centers, like Indianapolis and Ann Arbor, a roster of clinical lectures on mental diseases held in the hospitals owned by the state, equipped especially for clinical instruction by the state, and contributed by the state as their part in the endeavor to disseminate knowledge of mental diseases among medical men. To me this is a wonderful advancement, a true triumph for scientific medicine and second in importance for the public's welfare, to the establishment by the state of hospitals for the housing of the insane.

This is the second period of advancement, the clinical period, so styled by Janet; but in this part of the country it is belated. Illinois, alas! is just on the edge of the clinical period; it would have stepped into it this past year but for the fact that we as a state, as reflected in the minds of our legislative body, are still in the nursing bottle stage of this great educational problem. We need to progress; we need to study the history of civilization; we need to read White's Warfare of Science with Superstition and have more genuine love for science and trust in its establishing truths. We must have our sister states, Indiana and Michigan, show us how they educated their people to believe in clinical instruction in mental diseases and to profit by it.

I am afraid Illinois comes under the criticism applied to medical education in the United States, which I recently read in the *London Lancet*, as follows: "This position of affairs (speaking of irregularity of requirements) had its origin in the evolution of the United States, certain divisions of the country being in the forefront of civilization while



others were, to say the least, in a rudimentary plight." Illinois is in a rudimentary plight just now, but the people, as I before said, I believe stand ready and willing to follow in every advancement for the educational betterment of themselves and of the medical profession. Illinois has, however, in so far as improving the service in state hospitals, in insuring a more stable and developed medical service, made great advancement in the past two years; first in inaugurating Civil Service for the medical staff, which I am sure will secure efficiency after it gets to working in normal channels.

Again, it has made provision for the educational advancement of this permanent medical staff by establishing the Psychopathic Hospital at Kankakee, where facilities for thorough clinical instruction in all that pertains to mental diseases will be undertaken. This, too, will require time to develop in its full potential possibilities for genuine wholesome work. From this much desired nucleus in our state is to go out the great work of education, which will directly affect the problems encountered in hospital practice and, indirectly, the whole medical profession; for with thoroughly trained clinicians in the state service, they will and should, reflect their knowledge upon the mass of the profession through the channels of the medical societies; the current literature, general and special, of the profession; also, through popular lectures before local lay societies, the woman's club, the literary and philanthropic organizations and through the magazines and other popular current literature. Surely, the field is great but the harvesters are few, and speed the day when the medical profession and the layman may be informed regarding the real worth-while knowledge of insanity. The duties of the physician interested in mental diseases are arduous and confining and largely so because of the vast amount of education which he is required to impart, not only to the patients for their own guidance, but to the families and friends of the patient. I remark to my nurses that in order to treat the individual we must treat his whole family, because without their co-operation our efforts would be futile.

This suggests the thought of what preparation really is required for the special work of care and treatment of mental diseases and what field the Psychopathic Institute is to occupy in educational lines. In a great measure the clinician must, through choice and not chance, select the work before him. This suggests, too, that the earlier such selection is made in his preparation the better for the clinician and the better for the work which he is to do. He should have the best possible preliminary training, preferably a biological collegiate course, with mathematics thrown in as a valuable side line; then, a good up-to-date medical college course, in which, again, his biological training, in his laboratory studies, will be of great service.

A hospital course in a general hospital and, preferably, a teaching hospital where clinical instruction is given to students; then service in the state hospitals. In the special training in the psychopathic hospital he should have psychology (normal and abnormal), which should include sociology; psycho-physics or applied psychology in order to elucidate

mental phenomena; then a training in genuine true optimistic philosophy which will give him equanimity, power of self-control and cultivate hope, cherish ideals, all of which adds to that wonderful therapeutic power found in psycho-therapy. I add this last because my observation teaches me that the successful physician in mental diseases must know characteristics; must know personalities, and must reflect hope, cultivate hope and stimulate hope at all times and under all conditions. He then should direct the reading of his patients and their friends so that they may live in the educational atmosphere which cultivates their own powers of self-control and reflects them upon others with whom they come in contact. You know that we are creatures of habit, and, too, we follow, consciously or unconsciously, examples, especially environmental examples which lead to the formation of habits, good, bad or indifferent.

To properly radiate good habits, environmental conditions must therefore be good, and to know truly within ourselves what are the best conditions conducive to a long life of happiness, we must familiarize ourselves with the teachings of such leaders in mental hygiene and practical every-day psychological progress as those of Weir Mitchell, Stanley Hall, Clouston, Forel, Mercier and others, who have in the recent literature of to-day pointed ways of living which, even in the nervous, are compatible with a useful and happy life. Again, "Don't Worry Don't's," while fictional and looked upon as a joke, are helpful in the line of suggestion to those who will but heed them.

Environment is a powerful determining influence, perhaps not as great as shown in the hereditary transmission of species, but even Weisman in his work on Evolution regards it as a power, and as the influence in the production of functional disturbances of mind; it is, in my judgment and experience, the most debilitating and productive factor we have to meet. This suggests one of the most prominent duties of the medical man, aye! paramount in its ultimate good, prevention, by educating the people into the knowledge of the facts of insanity, which will be of service to them in prevention of insanity; to teach them the earliest manifestations, which are largely nutritional disorders, and which, if early recognized, can be met, but which, if allowed to go on, do insidiously lead to the profound and distressing mental disorders. Mercier says, "such facts of insanity must be of service, for of this malady more than any other it is true that the earlier its beginnings are recognized the better the chance of prevention and the more sanguine the hope of cure."

Time will not permit me to discuss with you these facts, nor to go further in discussing ways and means of disseminating them among the people, but I will say that upon the education of the masses depends not only the prevention of disease, which is a crowning glory of the past and of this century in medicine, but from the standpoint of the ultimate and final problem, which Huxley says, to which all great sociological problems finally resolve themselves, viz., the financial side. I would say that in dollars and cents (the avenues with which we can only hope -

to reach that great majority of mankind) it means money saved to educate the people regarding insanity; it means money saved to provide psychopathic hospitals; it means money saved to educate your physicians to the highest possible attainments.

I can not refrain in closing to say that my own profession, thank God! in its ideals, looks for a greater reward to the state, to the people, to the profession of medicine, and that is in having a faithful service crowned with the ultimate purpose of true medical science, in the prevention of disease, in the cure of disease and of adding peace and comfort to mankind.

## THE TREATMENT OF CHOREA MINOR.\*

D'ORSAY HECHT, M.D.

Assistant Professor of Nervous and Mental Diseases, Northwestern University Medical School; Consulting Neurologist to the Cook County Institutions for the Insane at Dunning, Ill.; Attending Neurologist to the Michael Reese and St. Elizabeth Hospitals.

CHICAGO.

It may be contended, and perhaps with much justice, that telling advances have not been made in the field of rational therapeutics applied to chorea minor. Participating in this view, the reasons for it, I think, are near at hand.

The problems bound up in the effort to establish a close relationship between rheumatism and chorea, and the attempts made to fasten upon this disorder a uniform and characteristic pathology have quite generally led students away from reflections on treatment. Also the traditional belief that chorea is an entirely innocuous malady, eventuating in spontaneous cure, has caused not a few physicians to incline toward therapeutic nihilism, and in passing one might refer to that other group of men in the profession who categorically discourage the rational treatment of all disease and from insincere motives favor a species of senseless polypharmacy.

In describing the treatment of chorea, I am aware of bringing forth little, if anything, new, certainly nothing revolutionary. I am in reality presenting a series of accepted measures, any one of which without being strictly indicated may be given at some time in the course of the disease. An estimate as to the merit of one kind of treatment over another is ventured from recent experiences with seventeen well-defined cases of chorea in children, in eleven of which the clinical notes are complete to the end of the attacks. The number would be increased to a total of 130 if the cases recorded in the neurologic dispensary service at the Northwestern University Medical School were included.<sup>1</sup> I feel it superfluous to add, that in my conclusions due regard has been shown for the views of others who have presided over a much larger material.

When we consider how indifferent the greater number of mild cho-

\* Read at the joint meeting of the Chicago Neurological and Chicago Medical Society, May, 1907.

1. Cases of Chorea Recorded in the Neurologic Dispensary Service, Northwestern Univ. Med. School, 1902 to 1907.

Age .....	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
No. cases .....	2	1	4	12	13	15	15	11	12	9	6	5	2	3	3	1	0

reics are to close medical scrutiny, how irregular and inexact in the matter of taking their medicines, it is obvious that precise or statistical conclusions must be next to valueless and instead only generalizations, impressions and personal experiences find their way into the literature. This is practically true of nearly all observations on choreas save those of the rheumatismal type, presenting cardiac involvement.

In the seventeen carefully annotated cases mentioned, ranging in years from 6 to 20, it was possible to carry out the plan of absolute bed rest without medication in three; in two, bedrest was coupled with large doses of antipyrin; two required rest and aspirin, and one received rest and salicylate of soda; in three absolute rest was enforced, together with arsenical solution given by mouth; in two others, rest was observed and arsenic given hypodermatically; in four, resort was had to Fowler's solution, with the patients always up and around. In this series, it may be of interest to note the duration of attacks. Of the three patients subjected to absolute bed rest alone, one got well in four weeks; one required six weeks, and one recovered in three months. Of the three cases, in which it became necessary, owing to severe concurrent rheumatism, to give the salicylates and aspirin, two ceased twitching in eight weeks, the other in thirteen weeks. The two cases treated with rest and very liberal doses of antipyrin were of the severe type and responded thus: One case terminated in twenty-four days, the other in forty-two days. In the three cases where Fowler's solution was given with bed rest, the terminations were five, seven and ten weeks, respectively. In the two cases receiving arsenic hypodermatically, one was cured in three, the other in six weeks. The last mentioned case was open to favorable comparison with other methods, since the patient previously had received Fowler's solution by mouth together with bed rest, the attack, nevertheless, lasting four months. Of the ambulatory cases, four in all, two were not well until nine weeks, and two required four months. Only a relative value would attach to the report of the much larger series of 113 cases observed during the past five years at Northwestern University Medical School, because of the irregular visits and untimely disappearance of patients. Based upon the modest series of cases just briefly quoted, the inference would be justified that *cases of minor chorea of moderate severity show no great differences in their duration, whether under a treatment entirely expectant or strenuously medicinal.*

In a paper of recent date, Cecil Wall has made an extensive inquiry into the treatment of chorea, which, in part, is worthy to be referred to here. He reports (1) twenty-nine cases treated with salicylate soda; fifteen getting well in less than three months, and fourteen recovering in less than two months. (2) Thirty-eight cases were treated with aspirin, of which thirty-five were cured in less than two months and three in less than three months. (3) One hundred and sixty-five cases were treated with arsenic in various forms; of these, 114 were cured in less than three months and 63 in less than two months. (4) Twenty-seven cases were treated with general measures and cod liver oil, of which nineteen were well in less than three months and thirteen well in less than two.



Taking them all in all, the mild together with the severe cases, one can not help but feel that the appropriate treatment for chorea comprehends: (1) Rest and isolation; (2) improved hygiene and nutrition; (3) drugs judiciously used. Disregard for these measures frequently results in a failure to get an ideal cure in chorea, and there often remains the impress of permanent instability upon the general nervous system.

#### REST AND ISOLATION.

Here, as elsewhere in medicine, *rest*, ever so respected in the theory, is not sufficiently urged in the practice. Feré, writing in one of the well-known systems of medicine in vogue ten years ago, says: "In grave cases (of chorea) precaution should be taken to protect the patients against injury by keeping them at rest and sometimes even in bed with padded guards." Feré also mentions insomnia and the necessity for normal sleep, but says nothing of rest as a desirable relaxant to an irritable nervous system. The later works have given this item more prominence, but they do not sufficiently force it upon the attention of the reader.

The element of *complete rest* can not be overestimated in chorea, and especially is this true of its service in the earliest period of the attack. It is quite the natural thing to advocate it when the twitchings are so severe as to render the individual an animated jumping jack, in which extremity there ceases to be an alternative. It is the patients of robust build, florid complexion with very slight twitchings, who are advised that they may remain up or lie down or do a little of either. In these individuals, the needful amount of rest is not prescribed. The advice the lighter cases of chorea should receive is, in effect, that theirs is a disorder in which anemia, general malnutrition and endocardial mischief may conspire to inflict irreparable damage, that these sequelæ must not only be anticipated by the physician, but promptly averted so far as that is possible, with *rest*.

It is always indicated to immediately take choreic children out of school, away from the confinement of the class room, remote from the atmosphere of intense study and rigid discipline. Above all things, the parent should realize the futility of whipping the choreic child for apparent awkwardness and a display of temper and be enjoined from inflicting every kind of punishment or restraint. But that is not all. Once removed from school and tenderly treated, the child should not be left to indulge in play as a beneficial form of relaxation.

It is far way from the leisure and relaxation of normal play to rest as it should come to be understood and valued in the treatment of chorea. Here, rest implies emancipation from all kinds of physical and mental excitement. The run-down, pale, irritable, overwrought, twitching child must be put to bed in a quiet place, be treated by a quiet, unobtrusive individual, in a quiet manner. Left to its own devices, a child restless and not very sick will soon crave entertainment, but such diversion should not be of its own making. It is misplaced kindness to load a little patient down in bed, with games and playthings without number, and have all the neighbors' children in, crowding the sickroom, to help pass away

the weary hours. It is imperious to keep the choreic child passive; therefore, it must be read to, talked to, sung to; in short, entertained.

Should rest prove very irksome, as it not infrequently does, thereby aggravating all symptoms, reasonable measures of repose on a couch or reclining chair should be tried, always, however, with an intent to supply the element of amusement. The management of such changes in a long siege of bedrest requires much tact and ingenuity.

Timely rest in the severer forms of chorea may entirely ward off and will surely minimize the danger of the much-dreaded endocardiac complications, and its effectiveness in these cases is the greater as we encourage with rest, *isolation*. In grave instances, the mental irritability, the excitable and exhausted physical state, demand this seclusion.

It is not at all uncommon for the muscular twitchings and bodily unrest to be so great that ways and means of avoiding self-inflicted injuries must be devised by the generous use of mattresses, cushions, pillows and side-bars, padded with cotton. I have seen a child, 8 years old, whose seizures threw her violently from the bed to the floor and for whom this sort of restraint became necessary.

Need I add that every plan contemplating rest should include the consideration of a light, sunny, and well-ventilated room? Warm sunshine should never be at a premium in the sickroom of a choreic child.

Adjunctive to rest, isolation and hygiene and quite as essential as any of these, is the matter of *food* and *feeding*. The diet should be light, non-stimulating, nutritious, easily assimilable, and given in abundance. The latter advice is emphasized not for the reason that these children are deliberately underfed, but accidentally so, owing to the embarrassment they are made to feel by the severe twitchings and inco-ordination. The giving of liquids is frequently curtailed for the same reason and the insufficiency of fluids, together with an excess of highly nutritious foods, tends to constipation. Tea and coffee are interdicted. All writers are agreed that fats are positively indicated, and, therefore, advise milk, cream and butter in great plenty, but good soups, meat, fish, eggs, spinach, lettuce; in short, the nitrogenous foods are not to be omitted.

When a patient is given to taking too much farinaceous food, it is very liable to produce excessive flatulency, thereby increasing the sense of palpitation, which may already be severe, from cardiac involvement *per se*, or the degree of anemia invariably present in advanced cases. I have had occasion to give Kazol a fair trial in cases where milk was either not well borne or disliked and have found it very satisfactory.

Under general measures, we should have in mind the importance of baths, in conjunction with gentle massage and very moderate gymnastics. That the warm bath acts as a sedative and eliminant to an irritable, nervous system is conceded, and Hollopeter goes so far as to say that the bath in his hands has been the entire and most satisfactory treatment. He advises a bath at a temperature of 90 to 98°, such as will neither surprise nor shock the child who is to be immersed in the water, all except the head and neck, and allowed to remain there for at least an hour or

two at a time, twice a day, the last ten minutes being devoted to properly given, gentle, light massage. Hollopeter has treated forty or fifty choreics according to this method of the prolonged warm bath, shortening the attacks from three months to six weeks.

Gymnastics and voluntary movements, encouraged by the French school as early as 1827 and endorsed by Jolly, Germain, Lec and Bonvier, were devised to re-establish the influence of the will upon the movements. The plan, which, with the aid of a mirror, contemplates precision, direction, extent, rapidity and energy of movement, is, in my opinion, perhaps more appropriate for the various forms of tic. In the severe cases, attended with great muscular weakness, gymnastics will prove harmful, but in the milder forms moderate exercises are permissible and may have a beneficial effect.

Throughout the active periods of the disease, in some cases, emotionality and perverseness require moral restraint, and so it frequently happens that isolation or hospital treatment is of better avail than the sympathetic interference of meddling relatives at the home. The convalescent choreic must not be allowed to prematurely return to school and studies. Here a long vacation has its distinct advantages.

#### MEDICATION.

The medicinal agents called into use in chorea are, broadly speaking, the tonics and sedatives. Of the former, arsenic in one form or another has by common consent been accorded the first place. It has come to be considered the remedy par excellence and as such is another brilliant instance of empiricism in medicine.

von Bechterew has sought to put the value of arsenic and its action in chorea on a scientific basis. He does not speak of it as a nutrient to nerve tissue as older writers do, but thinks that it acts on the nerve centers, then on the nerves, the reflexes and finally on the spasmodically twitching muscles. His premises are doubtful. Now and then we hear enthusiasts or the uninformed, referring to Fowler's solution as a specific for chorea, a statement which savors strongly of extravagance and not at all of the truth. The liquor potassii arsenitis is, from an orthodox viewpoint, no doubt, the sovereign remedy in this affection, *but in no sense may it be called a specific*. Arsenic acts with very good effect on many patients, but its universal administration has shown that a large percentage of choreics remain unbenefited, and I think it neither merits nor enjoys the reputation or popularity accorded it in the past. The toxic effect of arsenic should always be borne in mind, especially in office practice, where it is customary to thoughtlessly prescribe four ounces of Fowler's solution and fail to caution the patient as to the puffiness of the eyelids, gastric disturbances, parasthesias and weakness in the extremities, which latter two symptoms appear as the forerunners of an arsenical neuritis. This form of toxic paralysis is not to be confounded with the appearance of a disseminated neuritis, which Mills says occurs in certain stages of chorea, just as an arthritis or endocarditis occurs and independent of arsenical treatment.

Spiller has made reference to a number of cases of arsenical neuritis

reported, and has himself observed one. Comby has met with such an experience, and Patrick has seen it where large doses of arsenic were given. The original advocates of massive doses of arsenic, Ziemssen and Seguin and later Comby, have found few supporters. To me it seems immaterial whether the neuritis occurs in idiosyncratic individuals or from prolonged large dosage; the point to be remembered is that it does occur, and with the knowledge of such consequence it is incumbent upon every one administering arsenic to inquire into sensory symptoms and carefully test from time to time the knee-jerks, which, if diminished, should suggest the immediate withdrawal of the arsenic. The ambulatory type of case frequenting the office or the dispensary is not the one from which to draw satisfactory inferences as to treatment. In office practice, whenever administering arsenic, I always observe the following precautions:

(a) Deny the renewal of the prescription by writing *non repetatur*.

(b) Never let the prescription call for more than four drams of the liquor potassii arsenitis.

(c) Give the patient accurate written instructions for graduating the dose, beginning with five drops, and emphasize diluting it with large quantities of water, to a pint, if necessary, to be taken in divided doses.

(d) Caution the patient to observe puffiness of the eyelids, nausea, paresthesias and weakness in the extremities.

(e) Test the knee-jerks (yourself) at each visit.

It might be well to add that arsenic is generally well borne by the young, and for a child of 6 or more years to tolerate as much as twenty-five drops of Fowler's solution in a large dilution of water after meals without adverse symptoms is not at all unusual. Thus far pre-eminence has been given Fowler's solution, but other forms are deserving of mention. Of these I would refer to arsenious acid, which, given in pill form, may contain from 1/100 to 1/30 of a grain. Where great gastric tolerance is present and the chorea steadily progresses, it is indicated, according to Eulenberg and Wiederhofer, to use arsenic subcutaneously. Quite recently, in a patient 18 years old at Wesley Hospital, I had occasion to use a standardized 5 per cent. aqueous solution of sodium arsenate prepared for me by Dr. John Long, which was injected under the skin in ten to twenty minim doses of solution. Twenty minims of this solution are equal to 52 minims of Fowler's solution. The injections were given every second day with an appreciable good effect on a chorea, which had hitherto been refractory to Fowler's solution. Even Fowler's solution may be put under the skin in five-drop doses, but some writers discourage all hypodermatic use for arsenic in children.

That chorea has in the past received a fair share of attention from those having remedies to exploit is seen from the very long list of drugs, good, bad and indifferent, cited in the literature, and it is no less amusing to note with what sincerity certain writers in the past have subscribed to certain of these drugs. One author thinks that arsenic, exalgin and quinin are of real service and have value in the order mentioned,



while another puts arsenic, strychnin and iron to the front. As a result of the efforts made to reach special conditions in chorea, such as the insomnia, vesical irritability, etc., the list of remedies is almost interminable, but for purposes of completeness I shall mention several and select a few that deserve comment. Belladonna, the hyoscin group, ergot, cannabis indica, exalgin, cimicifuga, strychnia, the iron preparations, the bromids, chloral hydrate, antipyrin, the salicylates—all have been used, and latterly Babinski suggests scopolamin hydrobromate. It is claimed that where chorea has for its basis no other cause than a general lowering of vitality, associated with malnutrition and anemia, strychnia and the iron tonics are of greatest value. In connection with the rheumatismal types, the salicylic acid group is effective. Among the sedatives, chloral and antipyrin are indicated.

Strychnia as an alternative was first employed by Trousseau and given in the form of the sulphate, with the object of substituting tetanic contractions for the clonic movements. It is agreed by all who use it that the strychnia is best given with large doses of syrup, preferably the syrup iodid of iron, and those who think well of this combination say it must be pushed to a point where there is a feeling of tension in the back leg muscles. The iron preparations are too many to enumerate. Suffice to say that iron in an assimilable and palatable form is indicated and well borne.

The esteem in which antipyrin is held by those who have used it freely in chorea is the more astonishing when we reflect upon the misgiving and fear that attends its administration as an antipyretic in the various acute febrile attacks of the adult. Wallner, in 1887, was the first to advocate its use and reported most favorably upon its effect. It is supposed to have a hemolytic action by virtue of which the twitchings are ultimately made to subside. It is then neither as an antipyretic nor analgesic that antipyrin finds its application in chorea, but as a sedative. The tolerance which the young exhibit for antipyrin, given in massive doses and for weeks at a stretch, is well known to those familiar with this remedy. I have myself in a severe case given five grains every two hours in the twenty-four, then reducing the dose to an average of forty grains daily, maintaining that therapy for a week without any show of cyanosis or cardiac depression and with marked improvement to the chorea.

Exalgin, analogous in action to antipyrin and very well thought of by Lowenthal and Dana, has never been extensively used. It is claimed that in a dosage of grains  $\frac{1}{2}$  to grains 3 (for a child under 10), three or four times daily, the drug acts powerfully enough to abbreviate the attack and is of greatest service in the cases of acute onset. Those who have used exalgin tell us it has a very marked hemolytic action, producing early anemia with grave symptoms of collapse, and for this reason it seems to me to be open not only to criticism but serious objection.

Salicylic Acid Group.—In chorea of the rheumatismal type we are confronted with valuable therapeutic suggestions from many reliable sources, all of which point to the employment of the salicylic acid group of remedies.

Lees has vouched for the efficiency of sodium salicylate, and claims that the failure of anti-rheumatic treatment may be owing to the insufficient dosage. He combines heroic doses of salicylate (100-120 grains daily) with large doses of bicarbonate of soda, and attributes his successes to this combination. He brought these views before a recent meeting of the British Medical Association, but they were not unanimously approved.

Aspirin (aceto-salicylic acid) has its ardent supporters. Williamson, from the splendid results he has obtained with it, urges further observations and advises that no alkali be given with or after aspirin, as the drug is likely to decompose in the stomach. In the Wall series it will be recalled that the best results were obtained in the thirty-eight cases treated with aspirin, getting cures in all in less than three months, and in 35 (92 per cent.) in less than two months. He adds that these figures are the more remarkable, considering that the cases were equal in severity to others, which under different treatment required a much longer time in which to get well.

Children take aspirin well; it may be given in doses of fifteen grains, three to six times a day, for a child 10 to 12 years old, and in ten-grain powder for a child of 6 to 8. Wall thinks it is best given stirred up in cold milk and taken on a full stomach. Occasionally it is rejected, but on the whole it is much better borne than the salicylate of soda and is not nearly so often attended with the disagreeable symptoms of salicylism, such as deafness, tinnitus, etc. Chloral hydrate, advised twenty-five years ago by Gairdner in England and Bouchut in France, has been employed very little, although its good effect as a sedative is conceded. Opium and the bromids, also much used in the past, have been discarded.

Babinski very recently (January, 1907) presented a case of chorea at the Société de Neurologie de Paris, in which he ascribed his successful treatment to the use of scopolamin hydrobom, 2/10 to 5/10 mg. pro die, given under the skin. He remarked upon the quick subsidence of the choreic movements, and added that he had now tried it in four cases with uniform success, and in one of these antipyrin, arsenic and chloral had failed.

In summing up, it seems to me that the therapeutic situation of chorea calls for revision in favor of the simplest measures. As one writer has so aptly put it, "In the practice of medicine, masterly inactivity is not always the most prudent method of procedure, but in chorea minor I would counsel the simplest treatment possible."

## VARICOSE VEINS AND ULCERS: THEIR TREATMENT.\*

W. S. ROYCE, M.D.

CHICAGO.

I trust you will pardon me for attempting to interest you in a subject so common and ancient, but the following reasons, I hope, will partially justify me in the attempt:

1. The great number of sufferers.
2. The number of these who are incapacitated from earning a living, many more who are partially disabled and not able to fill positions in their chosen vocations, and numbers who, while filling positions, do so only by suffering great physical pain.
3. That the multiplicity of adopted methods of treatment indicates the unsatisfactory results obtained by any is a truth especially applicable to this trouble.

Those who have had dispensary experience can well recall the washing, and salving, and powdering, and dressing of these so-called "old leg cases," who go around from one dispensary to another, dreaded and almost considered a nuisance by all, until they become disgusted with themselves, finally giving up to the idea that they are incurable. A large majority, as you know, of these cases are among the so-called middle and lower classes, people who are obliged to labor hard and spend much of their time on their feet and who, when finally the condition is severe enough, become inmates of our charitable institutions, a burden to themselves and to the community.

Of course, if these patients are put to bed, with the leg elevated, for a few weeks, with almost any simple treatment, they will improve or get well (though I am satisfied that the healing is not as firm as with the treatment about to be described), but as well might we prescribe a sea voyage to most of the patients who come to us with this condition. If we have a method of treatment which will cure these cases with no loss of time and without suffering, it must prove worthy of adoption.

I will not take up your time by discussing etiology and pathology—subjects so well known to you all. With your permission I will demonstrate a treatment which I have used exclusively for about ten years in clinic, dispensary and private practice, and which has given such splendid results that I think I am justified in thinking it the best.

The formula for this dressing is as follows: Oxid of zinc, 4 parts; sheet gelatin, 4 parts; glycerin, 10 parts; water, 10 parts.

Dissolve the gelatin in the water, add the glycerin and stir in the oxid of zinc, all being heated in a water bath, and you will find it easily prepared. The above formula is, no doubt, familiar to you, being that of Unna's paste.

First, we will consider a simple varicose condition without ulcers. We will put the patient on the table in a reclining position with the foot elevated, the heel resting on a support. We will now scrub the leg with

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green soap and hot water, then wash off with alcohol and wipe dry. By this time the veins will be somewhat emptied and reduced in caliber; although for the first dressing it is preferable—and this applies nicely in private practice—to have your patient remain in bed from the night before until you call, elevating the leg during waking hours, then you will have the leg in the best possible condition. Now, having melted your dressing, and having it as hot as can be comfortably borne, apply it evenly over the foot and ankle with a flat brush about two inches in width; then with gauze bandages about two inches wide commence at the ball of the foot to apply after coming back about half-way over the instep, always cutting off the bandage and starting over again, never reversing; next take a few strips of the bandage and apply around heel and ankle. Your knowledge of bandaging will suggest how to do this nicely, but the bandage must never be reversed, but always cut and started anew. Your dressing will hold each piece in place neatly, and you will apply more paste as needed. Now, having the foot and ankle nicely covered, apply the dressing to leg and continue the bandage, but as the lower edge begins to leave the upper edge of the bandage below cut and start again. In this way you will have a smooth dressing from the ball of the foot to the knee. Now examine, and if any irregularities in the contour of the leg appear carry a strip of bandage around, breaking joints, as we might say. Now apply dressing over all lightly and apply a bandage smoothly in the regular way, not tightly. This outer bandage may be changed, as the patient wishes, every few days for cleanliness. Such a dressing, when there are no ulcers, should be left on—the first one for two weeks, and after that a month or more, depending on the condition of the leg. When there has been much swelling and the condition improves, as it surely will, the dressing will become loose and a new one should be applied.

We will now consider the treatment of a case with an ulcer, which is simply a complication of the former condition, produced as follows: The tissues are edematous from serous exudation through the walls of the dilated vessels; there is a pruritus, and the sufferer scratches the skin, and a slight abrasion with infection occurs, an abrasion which would heal on the arm or on any otherwise healthy part of the body, where gravity did not play so important a part, or the abrasion occurs from slipping and injury by a scrape on a step, sidewalk, etc. This little abrasion shows no inclination to heal, but, on the contrary, grows larger from lack of nourishment, due to faulty circulation, a moist gangrene occurs, and we have an ulcer, soon involving often a considerable surface. We will here employ the following plan:

First clean the ulcer, curetting when necessary, and if ulcers are very foul I have found the application of a wet dressing of a solution of picric acid, 30 gr. to the pint, for 24 or 48 hours, an excellent plan. Now prepare the leg as in the simple varicose condition. The ulcer dress as follows:

Apply the dressing right up to the edge of the ulcer, then cover the ulcer very liberally with a dry powder. I have used several dry dressings,



but after long experience I have proved to my own satisfaction, at least, that these ulcers will heal faster and better under campho-phenique powder than any other. Now lay over ulcer about six thicknesses of gauze—six inches in size for an ulcer two inches across. Now proceed with your bandages and dressing, over all as in the former condition. When first applied, the above powder produces some pain, but before you have your dressing applied this will cease, not to return.

The dressing on the ulcerated leg may be left on for ten days, and when it is removed you will be surprised at the amount of healing that has taken place.

I remember quite well one case, that of a woman who came to my clinic with an ulcer about one inch by two inches, which was dressed as above, and the patient instructed to come back in ten days. She did not return for six weeks. In explanation she said that it felt so good that she did not want to come back. On taking off the dressing we found the ulcer entirely healed.

These are the reasons why this treatment is superior:

1. The soothing effect of the dressing, as the glycerin dehydrates the tissues and the oxid of zinc exerts a soothing influence, and the elastic yet equable support. We know that the blood vessels have resilience, which, if aided, will enable them to resume nearly their normal caliber.
2. The small number of dressings required and the long intervals which elapse between them.
3. Absolutely no loss of time to the patient.
4. The permanency of the cure.
5. Comparison with other forms of dressing.

Elastic stockings are taken off at night, and not after the patient is in a reclining position, and often put on in the morning after the patient is in an upright position, allowing the veins to dilate more or less, at least twice a day, which absolutely prevents a cure. The same may be said of any form of frequent dressings. This dressing is always applied after the leg has been elevated, and the veins have nearly acquired their normal caliber, and always put on subsequently before the patient is allowed to assume a standing position. In some cases the veins have become tortuous, hard and tube-like, but still the edema subsides and the dressing will exert firm, equable pressure, and gradually there will be great improvement. The tissues become firm by massage of dressing and will furnish a support for vessels.

Something should be said of operative treatment, Schades' operation, resection of veins, etc. I will say that the results are in most cases unsatisfactory, and this judgment is based on actual observation of results. Having examined all patients at the County Agent's Office, prospective candidates for Dunning, for eleven years, I have seen many cases on which operations had been performed who were in a worse condition than before.

I would state in this connection that this is an excellent dressing to use after operation, as it will support tissues nicely while healing takes

place, avoiding the necessity of long confinement in bed, and I am sure much better results could be obtained from operation.

Quoting cases would be taking too much of your time, but I could cite many instances of cure. One lady weighing 250 pounds I now have in mind, with a large ulcer on left leg, inner aspect, lower third, ulcer in size 2 by 4 inches, which had been open for seven years, cured by five dressings in three months. This woman ran a saloon, lived upstairs, tended bar much of the time, and never lost a day during the treatment.

Histories of many cases could be given, but this will suffice to illustrate what can be accomplished.

Gauze bandages should be used. The dressing will keep indefinitely, and only needs to be heated by a water bath at time of using.

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### TREATMENT OF SEVERE CYSTITIS.

G. KOLISCHER, M.D.

CHICAGO.

The treatment of inflammation of the urinary bladder begins to assume interest when routine applications fail to bring decided relief or to accomplish a complete cure. The great majority of physicians are satisfied if, in a case of chronic cystitis, they succeed in keeping their patient in a condition of relative comfort; that the real aim of all treatments should be an actual cure is a point often lost sight of completely.

This pessimism and indolence is due to the fact that chronic or sub-acute cases of cystitis are not usually amenable to those measures which are in so many quarters considered the only proper treatment of such conditions. Heroic measures, such as scraping off the mucosa by introducing instruments through the natural channels, or cystotomy, are contemplated and finally adopted only as a last resort. The first procedure is not without danger, because the curette, working under scant control, is, as has occasionally been recorded, apt to perforate the viscus; the other method, cystotomy, is quite an interference, as it confines the patient to bed for a considerable length of time and produces the annoying condition of having the patient almost permanently wetted by the trickling of urine. Finally, it must be admitted that the definite results of these interferences are by no means as satisfactory as is so commonly believed and taught.

The problem of treating and curing resilient cystitis can only be approached and solved in a satisfactory manner after we have emancipated ourselves from the traditional washing of inflamed bladders, and have ceased considering this time-honored procedure as a panacea for all troubles of this kind.

Stubborn and chronic cases of cystitis are essentially based on rather deep-seated infiltrations of the bladder wall; in order to bring these to absorption, a very energetic reaction has to be brought about by the use of rather strong solutions; at the same time it is essential to deposit only a small quantity of such a solution in the bladder so that harmful distension be avoided. It is evident that the mere flushing out of the blad-

der with weak solutions can not be expected to have such an effect. Incidentally, I should like to criticize a generally accepted, although absolutely erroneous, idea that it is desirable to distend an inflamed bladder by the injection of the selected solution so that every part of the mucosa be brought into contact with the fluid. Nothing is so harmful to an inflamed bladder as to distend it.

A very important preliminary step in the treatment is to make the bladder tolerant to those severe applications. Two points are gained by this preparation: we save the patient the very painful contractions and spasms with which an unprepared bladder would respond to the introduction of strong solutions, and, as a result, we avoid hurting the patient so much by the first treatment that he is apt to become discouraged and absolutely declines any continuance of the treatment. In order to make the bladder tolerant we have at our disposal two methods which, after a few applications, will usually produce the desired effect. One is the use of moist heat in prolonged applications, either by applying hot packs over the abdomen and perineum or by prolonged hot sitz baths. In women, to these applications may be added the insertion of a bathing-speculum into the vagina during the time of the sitz bath. The other method is the injection of iodoform emulsions into the previously emptied bladder; it is important, however, to make these emulsions with oil and not with glycerin, as glycerin absorbs water from the tissues and very often, as a consequence, produces severe smarting and pain. About an ounce of a 20 per cent. emulsion should be injected into the bladder once every day until the bladder no longer reacts with pain to bimanual palpation. This effect, as a rule, is produced after from four to six iodoform injections.

After the bladder, by either of these methods or by a combination of both, has been obtunded in its sensitiveness, the case is mature for the actual treatment, which consists in the instillation of concentrated antiseptic solutions; the choice of the drug is important and is dictated by the nature of the case.

In postoperative cystitis, which occurs so frequently in women after operations necessitating extensive detachment of the bladder and the laying bare of the vesical ends of the ureters, bichlorid of mercury acts as a specific. At first, solutions of 1-10000 are used, later 1-5000; of these solutions about two ounces are injected at a time. In the first treatment it is a good plan, in order to prevent any excessive irritation, to let the solution run out of the bladder a few seconds after it comes in contact with the mucosa; these applications are repeated every other or every third day. In the later stages of the treatment, the bichlorid solution can be left in the bladder until it is expelled with the next urination. The treatment is continued until all clinical symptoms have disappeared and cystoscopy reveals the return of normal conditions. But, even after the bladder has been carefully prepared by the preliminary treatment, the first application of bichlorid will occasionally cause considerable pain which, if not attended to, may last for hours. It would be simply cruel to let a patient suffer in such a way; liberal hypodermic administra-

tion of morphin is the best means for subduing the pain and for putting to rest the excited bladder.

Subacute and chronic cases of cystitis due to gonorrheal infection react excellently to the application of argyrol and ichthyol. While it is true that certain laboratory experiments have shown that argyrol is of a minor bactericidal power *in vitro*, still it can not be denied that the clinical results produced by argyrol are very satisfactory. In cases of stubborn gonorrheal cystitis, a 10 per cent. solution of argyrol is first employed; later on, this concentration is increased to 20 per cent. In women, the stronger solution can be used at once, because the female bladder is much more tolerant than the male. About one ounce of the selected argyrol solution is deposited in the bladder at a time and is left there until it is expelled by natural forces. This medication, of course, takes place after the bladder is completely emptied. In case the cystitis should produce considerable quantities of mucus and pus, especially should these exudations cling rather tenaciously to the bladder wall, the viscus should, previous to the argyrol instillation, be cleansed by irrigations of normal salt solution. It should be reiterated that, in the course of these irrigations, the bladder should never be distended to any extent.

If, after the daily applications of argyrol have cleared up the mucosa in a general way, inflamed patches still remain to be seen through the cystoscope, the treatment should be changed to the application of ichthyol. A 50 per cent. emulsion of ichthyol in some indifferent oily substance should be applied regularly until normal conditions are restored. It should be borne in mind that ichthyol, even in very tolerant bladders, usually excites such contractions that it is forcibly expelled shortly after its application. It would, therefore, be advisable to have the patient prepared.

Chronic and gonorrheal cystitis will quite often persist about the internal urethral orifice even after the remainder of the bladder has been entirely cleared up. From this focus, permanently distressing clinical symptoms may accrue and reinfection of the whole bladder occur. We should, therefore, in such cases, be ever on the lookout for this detail; should the retrospective cystoscope reveal such a condition, appropriate treatment must be employed in order to eradicate this last stronghold of the infection. The treatment consists, in both men and women, in dilating the urethral orifice by the introduction of heavy sounds of increasing size, and in following the sounding by the instillation of 2 to 5 per cent. silver nitrate solutions into what is commonly called the bladder neck.

Chronic gonorrheal inflammations of the bladder have a tendency to produce ulcerations of the mucosa; these are due to the breaking down of the central part of the disseminated infiltrations. Very often these ulcers remain after the treatment has, in a general way, cleared up the mucosa. An additional procedure must then be employed in order to accomplish a perfect cure; these ulcers should be curetted and cauterized through an operative cystoscope. This method was devised and recommended by the writer some twelve years ago and has since been quite universally adopted by urologists.



As to the use of concentrated silver nitrate solutions, while it is true that, in some cases of chronic cystitis, good results are achieved by their administration, it must be borne in mind that, if, after a short time, their application does not produce a decided improvement, they are without value. Furthermore, the strong reaction and the resulting discomfort of the patient are quite often not in proper proportion to the benefit to be derived from the silver nitrate. Therefore, it would be more rational, in such case, to abandon this medication and to employ drugs which would bring about better results with less suffering to the patient.

The constitutional treatment of cases of chronic cystitis should be limited to regulating the diet and forbidding alcoholic beverages. The excessive use of alkaline waters and especially the administration of the various balsamic drugs is to be severely condemned; they irritate the kidneys, upset the stomach and, furthermore, never furnish the miraculous results promised in the advertisements of their manufacturers.

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## EARLY DIAGNOSIS AND TREATMENT OF MULTIPLE NEURITIS.\*

JULIUS GRINKER, M.D.

Professor of Nervous and Mental Diseases, Chicago Post-Graduate Medical School;  
Assistant Professor Clinical Neurology, Northwestern University Medical  
School; Attending Neurologist to Cook County Hospital.

CHICAGO.

Assuming that few practitioners will have difficulty in recognizing a well-marked case of polyneuritis with toe-drop, wrist-drop, extreme painfulness and muscular wasting, I shall confine my remarks to the less conspicuous signs and symptoms of this disease with the object of facilitating the diagnosis of ill-defined cases.

### SENSORY SYMPTOMS.

In almost every case of multiple neuritis from whatever cause, some form of disturbance of sensation appears early and remains late. This may vary from a mere feeling of numbness, prickling, tingling or formication to the most excruciating pains described as tearing, boring, stabbing, stretching or burning. The paresthesia is usually constant, worse at night and may be interrupted by paroxysms of pain.

Hyperesthesia constitutes an early objective sign in many cases. The mere touch of a camel's hair brush may produce a disagreeable feeling akin to pain, and a blunt-pointed needle when lightly applied to the skin may give rise to extreme pain. Ordinarily the stage of hyperesthesia is followed by one of anesthesia, during the continuance of which there is either decided reduction or complete loss of perception of touch, pain and temperature. Delayed transmission of painful stimuli is considered the equivalent of anesthesia. The deep sensibility from muscles and joints is often equally affected with superficial sensation, which accounts for the incoordination and ataxia frequently encountered in this disease. A sign of great diagnostic value is tenderness elicited upon pressure of

\* Read before the Fifty-seventh Annual Session of the Illinois State Medical Society, May 21-23, 1907.

muscles and nerves, which may cause discomfort even from the bed clothes. If superficial anesthesia is associated with deep-seated pain on pressure, the diagnosis of neuritis becomes a certainty. Hyperesthesia of the soles of the feet may constitute the earliest and only sign of polyneuritis. Several years ago I treated a patient for extreme tenderness of the feet which made it impossible for him to walk, although he felt well in every other respect. His physicians made a diagnosis of simulation, because he belonged to an insurance order and claimed sick benefits. The only findings were extreme sweating and hyperesthesia of the plantar surfaces of the feet, exaggerated knee-jerks and a history of alcoholism. The case subsequently proved to be a typical alcoholic neuritis.

The sensory disturbances may be limited to single nerve trunks or they may affect entire limbs, are most aggravated in the peripheral portions and diminish in intensity as the trunk is approached. It must not be forgotten that multiple neuritis is a symmetrical affection, which enables differentiation from many conditions not having a symmetrical distribution.

#### MOTOR SYMPTOMS.

Various grades of motor insufficiency may be encountered, from slight weakness to complete paralysis of all four extremities. A common early sign of motor disturbance is extreme fatigue upon slight exertion. A patient who always considered himself strong notices a diminution in his working capacity, and muscular weakness ensues which he is inclined to ascribe to irrelevant causes. From a mistaken belief that his disability can be "worked off" he makes a final effort, but finds himself paralyzed and has to seek his bed. The paralysis may become complete within two or three weeks or its evolution may take as many months. The result is the same. We find the characteristic extensor paralysis in hands and feet, followed by various deformities and contractures, because of unopposed muscular action. The usual course is for the lower extremities to become affected before the upper extremities, but the reverse may and often does take place. As the disease is situated in the lower motor neuron, rapid wasting appears in the affected muscles, so that within two or three weeks the skin is seen to hang from the bone in large folds and muscle tissue becomes scant.

Within a week or ten days some form of reaction of degeneration can be discovered in the affected muscles and nerves. In testing for the reaction of degeneration the two essential points to remember are: First, response to the faradic current is greatly diminished or lost in both nerve and muscle. Second, the contraction by galvanism becomes slow and vermicular, unlike the contraction of normal muscle, which occurs with lightning-like rapidity.

#### REFLEXES.

In every case of polyneuritis, even before muscular weakness has appeared, changes in the reflexes are noted. With the exception of those few cases in which the deep reflexes are temporarily exaggerated, they are always either reduced or absent. In testing for the reflexes it is not sufficient to take the knee-jerks; the Achilles jerks should also be exam-

ined, as they have been shown to be lost even when the patellar reflexes were intact. Reduction or loss of the deep reflexes is an early sign in many forms of multiple neuritis and should be looked for in every case.

Owing to the loss of deep sensibility—the disappearance of the muscle and joint sense—ataxia occasionally appears as the most prominent sign in polyneuritis. More than once has the latter been mistaken for tabes because of the presence of this symptom. The ataxia may resemble that of tabes, but the Romberg sign—the swaying with closed eyes—is usually less marked than in tabes. The cases showing incoordination, the so-called neuro-tabes peripherica or pseudo-tabes, are occasionally seen in alcoholic or arsenical neuritis, but most commonly in diabetes. It is for this reason that the older authors speak of diabetic tabes when they really mean diabetic polyneuritis.

Having considered the important sensory, motor and reflex changes somewhat at length, we shall have time only to hurriedly mention some of the less constant and, therefore, less important symptoms.

Edema and vasomotor disturbances in the peripheral parts of the body, accompanied by profuse and offensive sweatings, are rarely seen in polyneuritis.

Moderate fever, ranging from one to three degrees above normal, may usher in the disease.

The pulse is slightly accelerated. A pulse of 90 to the minute is still considered normal for multiple neuritis. When the pulse rate becomes 140 and irregular, the vagus nerve is probably implicated and a fatal outcome is likely to follow.

Sphincters are uninvolved except in the few cases in which the sensorium becomes clouded and the patient passes into a low, muttering delirium with extreme exhaustion.

The causes of multiple neuritis are many and must be carefully inquired into for purposes of diagnosis and treatment. Writers usually class them as toxic, infectious, metabolic and cachectic. The most important representatives of the toxic variety are those caused by alcohol, lead and arsenic; of the infectious or rather postinfectious type, diphtheria holds the first place; diabetes represents the metabolic variety; senile neuritis may be considered as fairly representative of the forms of cachectic neuritis.

Because of occasional difficulties in early diagnosis, diabetic and diphtheritic polyneuritis require special notice.

#### DIABETIC POLYNEURITIS.

This differs from the other varieties in the presence of muscular incoordination as one of its characteristic signs, while actual paresis may be absent throughout its course. Paresthesia, such as numbness, tingling, sensation of pins and needles, is common. There may be aching, deep-seated pains in the sciatic distribution, tenderness in the soles of the feet, but rarely is there severe pain. The knee-jerks and Achilles reflexes are lost early. Vasomotor changes, such as local flushings, pallor in hands or feet, are not rare. In addition, the ordinary complications of diabetes may be seen: gangrene of toes, perforating ulcer of foot, cataract, loosen-



ing of teeth, carbuncle, cranial-nerve palsies. It is important to note that in a pronounced case of diabetic neuritis the amount of sugar found in the urine may be insignificant. The symptoms of diabetic neuritis are often confusing and diagnosis must sometimes be withheld until a thorough study of the case can be made. About three years ago I saw a case in which a competent neurologist had made a diagnosis of brain tumor when the patient really suffered from diabetic neuritis with cranial-nerve palsies and epileptoid attacks caused by angiosclerosis. Considering that many of the nervous symptoms in diabetes might be produced by a complicating polyneuritis, a close study into sensory and reflex changes would appear to be almost as necessary as the usual urinary examination, and yet I have heard it said that practitioners are great sinners in this respect.

#### DIPHTherITIC POLYNEURITIS.

When diphtheritic polyneuritis appears in a mild form it is often overlooked at a time when its early recognition might have saved a life. Writers are not certain whether it is more frequent in children or adults. My own impression is that adults are more likely to develop diphtheritic polyneuritis because of the presence of accessory factors, such as alcohol, tobacco and other poisons, which are known to aid in its production. According to James Taylor, who has written an excellent chapter on this subject in his book on Nervous Diseases of Childhood, the usual time of onset of this complication is from three to four weeks after the throat affection, although it may appear even before the local affection has disappeared and, on the other hand, I have seen a case develop eight weeks after convalescence from diphtheria. The palatal paralysis, producing a change in voice and regurgitation of fluids, may precede by a few days the tingling and numbness and weakness in the lower extremities. The knee-jerks and Achilles jerks will be found reduced or absent, and at the same time or preceding the development of general muscular weakness paralysis of accommodation with or without external ocular palsies may be discovered. In one of my cases symptoms appeared in this order: regurgitation of fluid through nares, nasal voice, loss of light reflex and paralysis of accommodation, immobility of eyeballs from complete external ophthalmoplegia, staggering gait, loss of knee-jerks and muscular weakness with paresthesia. The great danger in diphtheritic polyneuritis is from involvement of the vagus nerve, which has killed many a patient weeks after he had triumphed over a serious, life-threatening attack of diphtheria.

It will, therefore, be evident that its early recognition is of paramount importance, especially in the management of the convalescing diphtheria patient. When a clear history of diphtheria or sore throat is obtained in a patient suffering from obscure nervous symptoms, polyneuritis should at once be thought of. In the absence of such a history, inquiry should be made for recent infectious diseases which may have been complicated by diphtheria without having produced grave symptoms. A colleague of mine, after having attended several cases of diphtheria, developed what he thought was a mild case of grippe, which confined him to his home for two days. Four weeks later he developed a typical case of diph-



theritic palsy. The diagnosis of mild grippe was then changed to diphtheria. In the absence of a history of infection, the presence of disorder of ocular accommodation, difficulty or cough on swallowing, the regurgitation of fluids through the nares, in addition to staggering gait and absent or reduced reflexes, make a positive diagnosis of diphtheritic polyneuritis. It is superfluous to add that such a patient should under no circumstances be permitted to sit up, not even for purposes of feeding or the toilet. I am convinced that many a case of sudden death following diphtheria has been caused by neglecting this precaution.

#### DIFFERENTIAL DIAGNOSIS.

For differential diagnosis the following points may be of service:

1. Peripheral neuritis is caused by a poison entering the body from without or produced within, which poison can usually be discovered if diligently looked for.
2. The symptoms are found in the motor, vasomotor, sensory and reflex nerve elements in various degrees of involvement, because multiple neuritis is a disease of principally mixed nerves which, as their name indicates, contain motor and sensory nerve fibers. This statement generally holds true even if we have to admit that some poisons have selective affinities for certain of the nerve elements; careful search will usually reveal slight disturbance in fibers apparently unaffected.
3. The disease affects the peripheral portions of the body first and most severely.
4. Symmetrical distribution is almost the universal rule in multiple neuritis.
5. Sphincter involvement is no part of the symptomatology of polyneuritis; its very presence is a strong argument against it.

#### PROGNOSIS.

The prognosis is usually good and can be made much better by timely and appropriate treatment. Repeatedly have I seen patients who had presented the worst picture of paralysis upon admission, leave the hospital without assistance and without crutches. Many patients, perhaps the majority, get entirely well; a small number retain atrophies for one to two or three years, or even permanently.

#### TREATMENT.

The types following infectious diseases can be largely prevented by strict attention to the period of convalescence, in which proper feeding and a recumbent posture are essentials.

In the toxic varieties alcohol in any form is to be strictly prohibited. A rational plan is to search out the poison with a view of either removing the poison from the patient or the patient from the poison.

In the acute cases an attempt should be made to shorten the disease by the administration of diaphoretics and salicylates with sodium bromid in doses of ten to fifteen grains each, repeated every three or four hours. The affected parts should be bathed in hot water, or hot water bottles may be applied, taking care that the parts are not burned. The application of moist heat either by local packs or general diaphoresis is the best

all-round remedy for the pains. If the patient's general condition permits, general hot baths may be tried. In debilitated cases, diaphoresis should not be used oftener than every second day. Morphin should be reserved for the cases in which the pain is so intense that there is danger from this cause alone. If given at all, it should be used in single large doses to insure the anodyne and hypnotic effects. Never permit the regular administration of morphin, because of the ease with which the morphin habit is created.

In the progressive cases we must watch the heart, respiration and deglutition. For the tachycardia Remak recommends hypodermic injections of caffein or camphor suspended in oil of sweet almonds. When respiration begins to flag use strychnia in large doses, also artificial respiration and faradism over the neck. In the beginning of deglutition paralysis galvanism may be tried, in the strength of four to ten milliamperes. It is well to remember that involvement of the bulbar nerves constitutes the most serious complication of the disease and when this has occurred unremitting attention should be given the patient in order to tide him over the crisis.

In every case an attempt should be made to remove pressure from the bony portions of the body, in order to prevent the troublesome bed sores. Water pillows are very useful for this purpose. Considering the frequency with which contractures and deformities follow multiple neuritis, we must plan early to prevent such occurrences by extending the knees and elbows and keeping them in this position. The troublesome footdrop can often be prevented by a proper apparatus or even a sandbag applied against the sole of the foot, which has been placed in the position of exaggerated dorsal flexion.

In the more chronic cases, strychnia and arsenic are highly recommended. When anemia is present, iron will have to be added. In diabetic neuritis the diabetes will require attention.

In recent years the routine treatment of all forms of polyneuritis with strychnia sulphate or strychnia nitrate hypodermically has deservedly come into general use, and it must be acknowledged to be the best single remedy we have in this disease. Its administration can be begun with 1/30 grain and it can be gradually pushed to 1/10 grain and even 1/8 grain three times daily. This treatment can be continued for months without unpleasant after-effects. Even children will tolerate large doses, although one must be cautious in the administration of strychnin to children. Orthopedic measures will suggest themselves in the correction of unavoidable contractures and deformities. And last, but not least, electrical treatment, proper massage, passive flexion and extension will have to be used systematically over long periods of time; treatment should be begun as soon as the acute pains have subsided and should not be discontinued until the patient has completely recovered.

100 State Street.

# ILLINOIS MEDICAL JOURNAL

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NOVEMBER, 1907.

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## CONSTITUTIONAL AMENDMENTS REQUIRED.

Although a great deal of care was expended by the committees of the A. M. A. and the state societies in the preparation of the constitution for the government of the state medical organizations, singularly enough, some important omissions occurred which are gradually coming to notice. This fact is no criticism on the work of the committees, but shows how impossible it is to foresee every emergency in building up an instrument for the government of large bodies of men. The omission which has recently been found is the failure to provide for the filling of a vacancy among the officers of the organization in case of the death or disability of the officer elected by the house of delegates at the annual meeting. It has recently occurred that a prominent officer, because of failing health, is unable to fulfill the duties of his office, and at the recent meeting of the council, when this was disclosed, it was found that there was no authority in the constitution or by-laws to elect a man in his place. The council, acting on the theory that common sense should be used when no law exists, made arrangements to appoint a member to act in the place of the disabled officer till the next annual meeting. At the annual meeting it is to be hoped that steps will be taken to fill in this or other gaps in the by-laws of the State Society in order to cover any emergency along this line.

The predicament of the Illinois State Medical Society is insignificant when compared to that of the Nebraska State Medical Society, as that organization last year lost its president by removal from the state soon

after his election, and the secretary, who had been elected for a full term of three years, started on a journey around the world, intending to be absent a year, showing that other organizations whose constitutions were modelled on the same lines as ours are equally in need of some legislation along this subject.

#### PAY PATIENTS IN INSANE HOSPITALS.

The July, 1907, *Bulletin of the Illinois Board of Charities* very appropriately takes up the subject of pay patients in state hospitals for the insane and draws some interesting conclusions from usages, both in this and other states. A new law governing this subject was passed by the last legislature, providing that the Board of Public Charities shall determine the charge against the relatives or other responsible persons for the entire care of patients, the employment of agents being authorized for the special purpose of ascertaining whether the relatives or other responsible persons have sufficient financial ability as the basis for the action of the state. As yet the board has not taken up this work because it is not provided with funds to employ the special agents. The act is modelled after a New York statute covering this ground. The state commission in lunacy of New York employs six agents who are furnished at the beginning of each month with a complete list of patients admitted during the preceding month together with addresses of the nearest relatives. The duty of these agents is to fully investigate and report to the commission as to what property may be available for the support of the patients. The commission thereupon fixes a rate and enforces payment to the hospital on the basis of such rate for maintenance. This is the class designated as "reimbursing" patients.

It is believed that if the new law is administered with the same result as in Massachusetts it could provide more than \$700,000 in the next two years. This would help the state very materially in elevating its charitable services to a modern level of efficiency. With this sum an epileptic colony and a state sanatorium for consumptives could be provided. The board has canvassed the results in all the states and the Canadian provinces and reached the following conclusions:

1. One gratifying fact appears in the experience of a number of states, in that, while many who are able to care for their relatives in the state institutions are seeking to escape their responsibility, there are multitudes of cases where the ability is not sufficient to meet the requirements of the statute, but where friends are voluntarily providing such support as they can.

2. It is evident from the experience of a number of states that the local agencies for collecting funds from friends of patients are too often subject to political or other influences to render them best suited to this duty.

3. The institutions themselves have been unfortunate in acting as collecting agencies with loss of revenue to which they were entitled and with friction which tended to interfere with the smooth running of their machinery,



4. The method which has been most successful has been that in which the state takes entire charge and employs its own agents for getting the information on which the question of adjustment of private support depends.

5. In all the best experience it appears that the enforcement of the provisions requiring private support is dependent on the use of good judgment in adapting the rule to the conditions attending the individual case. By the adoption of this spirit and by providing for partial support where the family or estate is not sufficient to meet the demands in full, the work of the institutions has been advanced by large additions to their means of maintenance, which otherwise would have been lost. The example of Massachusetts, which is set forth in some detail, seems to embody the most successful standard. Massachusetts derived 14.6 per cent. of its hospital support from private patients in 1905 and about 16 per cent. in 1906.

6. It will be noted as the most uniform policy that all patients are treated alike in the state institutions, whether they are maintained at public or private expense. No class distinctions or contracts based on pecuniary conditions are allowed. No difficulty is observable anywhere in carrying out this principle of management. The apprehension sometimes raised by this question may, therefore, practically be dismissed.

7. The terms current in designating the two classifications of patients indicate that there is quite a divergence in the usage, although the employment of the more considerate terms is the free privilege of all. In some states it seems to be a part of the policy of disciplining the relatives into partial support to apply the term "pauper" even when the patient is not a pauper in any true sense, but always has been an industrious, honorable and productive member of society, being only laid aside by accident or misfortune. The term "public" patient would have no reproach and has a legitimate and easily understood application, in contrast to "private" class. Its general use might be considered in lack of a better term. The term "lunatic" has all but disappeared from the public nomenclature, as it has from the public superstition. Most states have dropped the use of the word "incurable" as the public designation of a hospital to which human beings who still possess sensitive feelings may be committed.

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#### THE COUNTY SOCIETY AND ITS SECRETARY.

Dr. B. R. McClellan, of Xenia, Ohio, President of the Ohio State Medical Society, in his presidential address at the last meeting of the society, made the following remarks concerning county societies and secretaries. Dr. McClellan, like our last President, Dr. Percy, spent a great deal of time in visiting the county societies during his term of office and undoubtedly knows whereof he speaks:

"During the year past, it has been the pleasure as well as the duty of the speaker to visit many of the county societies of our state. Without exception can it be said that wherever many men were found who really graced our profession there was to be found a good medical society with

men living in harmony with each other. On the other hand, where many men were found who disgraced their calling, whose offices were dingy and untidy and devoid of modern equipment; where the men themselves, unshaven and in soiled linen, spent much time scandalizing each other, there organization languished and harmony and good fellowship were untasted and unknown fruits. As a rule, the fault lay at the door of an incompetent secretary. So important is the duty of a county secretary that many of us are not unwilling to accept the dictum of that prince of secretaries, Dr. John B. Donaldson, of Cannonsburg, Pa., who says that 'anything may do for a President of a county society, but not so as to a Secretary.'

"Undoubtedly the secret of his success is found in that other expression, to wit: 'I would rather be secretary of a county society than president of the American Medical Association.' Such a lofty conception of the possibilities for doing things, that make for the uplift of our profession, is proof positive of qualification for such service."

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#### AS OTHERS SEE IT.

The chairman of the Section on Surgery of the Iowa State Medical Society, Dr. John Hamilton, of Cedar Rapids, at the last annual meeting, made the following remarks in his address which we believe will prove interesting to our readers:

"What do statistics mean to the public and to the operator? They should mean everything and they mean nothing. Most surgeons should not undertake operations in which there is a very high mortality, and when we urge a patient to be operated on we should be able to say that such a number die from the operation, such a small number receive no benefit, and that so many obtain the result we want. As it is to-day, our statistics mean nothing. Not long ago in Chicago I saw a case in the hands of a noted surgeon. History, 23 years of age, married 16 months, for 3 months had had some disturbance of the digestive tract. The operator said: 'Gentlemen, this is a case of tubercular peritonitis, probably confined to the glands of the mesentery, which I will remove.' On opening the abdomen, a four months' gravid uterus presented. The operator then removed a normal appendix and closed the abdominal wound. After the resident had filled out the history sheet I read it. Diagnosis, acute appendicitis; operation, removal. Another case in the clinic, a man, 76 years of age. Removal of the prostate by the perineal route. One hour and seventeen minutes under ether before he was touched with the knife, and then when the blood was flowing from the perineal route and shock was extreme an assistant shaved his head and removed six sebaceous cysts. And, again, in the radical cure of the inguinal hernia, the incision could not have been any longer unless the woman was turned over and incision continued up her back; and all the time the operator was passing back and forth between the spectators in the pit, bringing his ungloved hands in contact with their dirty gowns and then into the abdomen of the next patient. What do the statistics of that operator mean when we read them? Nothing. In one of the larger hospitals of New

York City where many hysterectomies were being done, the dressings demonstrated infection, but a nurse could not write pus on a history sheet, but must write a serous discharge of a yellow or greenish color. Are the statistics of the operators in that hospital worth reading and being governed by? And so it goes. Let the statistics we present be honest and let us demand honest statistics from the operators we are going to listen to and follow."

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### OSLER NOW WARNS PHYSICIANS.

Prof. William Osler, formerly of Johns Hopkins Institute, Baltimore, now of Oxford, London, England, has recently given the following excellent advice to physicians. He apparently believes there is a good deal of sound sense in the aphorism: "Physician, heal thyself." In lecturing to students of St. Mary's Hospital he said that success in their profession is largely a matter of good health, and in this respect doctors were notorious sinners. "If you don't work too hard you smoke too much and are indifferent about exercise. The best students seem to pay the least attention to Nature's laws."

Osler has administered some other salutary advice. For instance, he says: "Don't be skeptical. He is the best doctor who knows the worthlessness of most medicine. Study your fellow-man, fellow-woman and learn to manage them. Remember above all things that you are in the profession as a calling, not as a business. Once get down to the purely business level and your influence is gone and the light of your life goes out."

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### CHAFEE OF SHELBYVILLE.

Senator Chafee, of Shelbyville, has been known to the profession of medicine as the prime advocate of osteopathic legislation, having introduced bills having for their object the establishment of a board for the licensing of osteopaths and active in forcing them to favorable action. The Senator met his Waterloo recently when he attacked the Lieutenant-Governor for his speech made at the opening of the Senate in special session. Senator Chafee charged that the Lieutenant-Governor was a dyspeptic and a victim of a disordered liver and, being without a wife to quarrel with, he took his spite out on the Senate. Lieutenant-Governor Sherman soon relieved his mind of the disease theory and came back at him with the following remarks on his record:

"As I have just said, I entertain the highest regard for each and every member of this body. There is one man, however, whose peculiar political methods prompt him to stoop to the degraded level of personally attacking men who differ with him on any question. He is short sighted and not willing to believe that it is possible for any man to see farther into a question than where the vision of his owl eyes stop. Yes, thank God, I have a lot of nerve, have had it all my life, and I am proud of the fact that I know how to use it. There is the shoe; if it is a little tight and small for you, crowd your foot into it and wear it and squirm."

"The Senator's attack," continued the Lieutenant-Governor, "comes

in poor grace from one who alone opposed an appropriation to enable the state to prosecute the Illinois Central and recover several million dollars due the state. The trouble with this Senator is that it takes an idea too long to pass a given point in his brain. It takes gall, usually, to tell the truth. I told the truth, although I reflected on no one and impugned no motives. My remarks yesterday concerned the public good.

"The condition of my stomach or general health is not a matter of public concern. My liver is in just as good order as the Senator's. He attacks all corporations except those he is personally interested in. He has been unsuccessful in the Supreme Court and, like other lawyers in his fix whom I have seen and heard, evens up his disappointment and chagrin with abuse of the court. The garment I cut here yesterday fits no Senator so well as it does the Senator who has just spoken. It fits him closely and tightly; if the shoe pinches, let him squirm."

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### CONTRACT PRACTICE.

The subject of contract practice is one that seems to be engaging the attention of a great many of the local societies of this and other states, and for this reason we have been requested by several to make it the subject of an editorial. By reference to our Society News columns it will be seen that the Fulton County Society utterly condemns the practice.

The different organizations making contracts for medical attention probably may be included in the following list: First, railway and street car systems; second, coal mining companies; third, manufacturing establishments; fourth, city, township, county and state authorities; fifth, lodges and sick benefit societies. From this extensive list, which includes not one or a dozen but hundreds of different organizations, it must be apparent that the subject is more complicated than would appear at first thought, and owing to this matter must be considered on very broad lines.

As a general statement, we think it will be conceded that lodge contract practice is not a good thing, and in proof of this contention we quote from a recent letter written by Dr. J. C. McCormick, who has probably had more experience in dealing with such questions than any other single medical man in the country. In answer to a question on the subject of lodge practice, he says: "An answer to an inquiry like this is so patent that it is difficult to make. Lodge practice of all kinds is degrading to the profession and still hurtful to the people, and the Eagles present the matter in its worst form. It would be better for the doctor to take it up frankly with his county society and abide by whatever decision is reached. It is often a temptation to a young man to try to get practice in this and other illegitimate ways, but if there is anything in him he will succeed better by adhering to the tenets of the profession which embody the wisdom of the ages and he will regret every day that he lives that he ever departed from them."

Dr. McCormick's remarks are certainly true, but at the same time it should be well understood that certain forms of contract practice seem to be absolutely necessary and that this is largely a question which must be settled by the local society in every community where it prevails; furthermore, it should be understood that if it is not dealt with on the



broadest possible grounds really more harm than good will result from agitation of the subject. It should always be recognized that each practitioner as regards his compensation for services must stand on his own merits, otherwise the profession will fall into one of the greatest errors of the modern trades union, which gauges each man by one fixed rule, giving to each the same compensation, no matter what may be the character of the work accomplished.

In conversation with a leading practitioner of Chicago we learn that the price of visits in that city varies from ten cents to five dollars, and the charge of the five-dollar practitioner is not influenced in the slightest by the ten-cent practitioner and *vice versa*. Each one gets what his services merit and what he is able to command from his clients. This is quite true in the practice of the law and every other profession, and we can not and should not be arbitrarily regulated by any dictum of any society. We hope, therefore, that while the general proposition that contract practice as usually understood is detrimental to the interests and dignity of the medical profession, that matters will be treated, as we before said, along general lines and with full understanding of all interests concerned. Finally, we would warn the young practitioner of the dangers of undertaking lodge practice at cut rates. Such a step almost invariably means professional incompetency and rarely results in the gaining of a profitable practice. On the contrary, where cut rates begin there is no limit to the depth of the cut and finally all practitioners and the community suffer. No man of wisdom desires to have himself classed as a "cheap doctor."

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### Scientific Editorial.

#### THE PRESENT POSITION OF RÖNTGENTHERAPY.

In spite of many prophesies to the contrary, Röntgentherapy is still with us. It has passed through the stage of shouting and tumult and now has reached a condition of quiet existence in which we may judge of its past results and estimate its present claims of usefulness. What then does it amount to? Has it justified its use and added anything of worth to therapeutics?

Briefly it may be stated that according to the findings of its early conservative users (and we are only concerned with the claims of this class) Röntgentherapy bids fair to be of more or less benefit in a large class of skin diseases, including some diseases of the appendages of the skin, notably acne, various mycotic and bacterial diseases, various chronic inflammatory diseases, some of the infective granulomata and other connective tissue tumors; in pseudo-leukemia and leukemia; and in malignant growths. How do these prospects look in the light of present experience?

As to its use in skin diseases, not including for the moment epithelioma, Röntgentherapy has proved its right of existence. While there is some difference of opinion as to its field of usefulness, as there is, for example, to that of every drug, it has been adopted almost universally by dermatologists. There is general agreement as to its value in acne,

in tinea tonsurans and favus, in infectious diseases of the follicles of the skin, in blastomycosis and lupus, in chronic sealy inflammatory dermatoses, like chronic eczemas, all extremely intractable diseases for which efficient remedies were greatly needed. This is a formidable group of diseases, but it leaves out of consideration various other conditions in which it is of value, but for which we already have satisfactory forms of treatment, and it also fails to include some very rare diseases like mycosis fungoides, in which *x*-rays have proved to be the first remedy of positive value. In tuberculosis, aside from lupus, Röntgentherapy may make some claims for usefulness in tubercular glands and in other subcutaneous foci of tuberculosis. In tubercular glands it is often of great value. In pseudo-leukemia and in leukemia it is undoubtedly of great temporary value in many cases. In advanced cases the patients may fail to improve, but as a rule great improvement follows its use. This, however, is temporary and sooner or later, it may be months, it may be even several years, the patients succumb. But even granting that *x*-rays are only palliative in these conditions, Röntgentherapy is still the one specific method which markedly benefits these progressively fatal diseases.

In malignant growths there is, of course, wide difference of opinion concerning Röntgentherapy. This much must be admitted, for *x*-rays: they can cause the disintegration of malignant cells, both carcinomatous and sarcomatous, and this process of destruction can be controlled in superficial growths so that these lesions may be destroyed without destroying their healthy stroma. It follows that at times great improvement can be produced in inoperable lesions and some lesions can be removed in this way which can not be successfully treated by any method requiring complete destruction of all the tissues in the invaded territory. It would seem, therefore, that the reasonable attitude in inoperable malignant growths is to give such cases the opportunity of receiving any benefit that may come from Röntgentherapy. And there is no doubt that there is real benefit in some of these cases. For example, some of the cases of recurrent carcinoma of the breast first treated with *x*-rays are still living. In epitheliomata, which from their superficial extent may be inoperable, *x*-rays offer the most practicable method of treatment. In operable epitheliomas the method of treatment is a question of personal choice. Pusey<sup>1</sup> has recently reported the results in a series of one hundred and eleven (111) unselected epitheliomas treated more than three years ago with *x*-rays. Some of these patients have been well for more than five years, and of the entire 111 cases 80 cases, i. e., 72.5 per cent., show after three years successful results. Leaving out of consideration the palliation which is shown by many of the 31 cases which he does not include among the successful results, that is a record which shows that Röntgentherapy in epithelioma is entitled to respectful consideration.

There would seem to be no room for doubt that in the present state of our therapeutical equipment the *x*-ray is an agent which has a wide field of usefulness in the hands of conservative and intelligent users.

\* International Dermatological Congress, September, 1907.

## COUNTY AND DISTRICT SOCIETIES

### ADAMS COUNTY.

The Adams County Medical Society held its usual monthly session, September 9, in the Elks club rooms, with the president and secretary in their usual places. Others present were: Doctors Bates, Shawgo, J. B. and Kirk; Meyer, Anderson, Koch, Williams, W. W. and J. G.; Robbins, Ericson, Johnston, Schullian, Christie, Hart, Ashton, Pfeiffer, Reticker, Nickerson, Montgomery, Zimmermann, and Wells; Miss Wheeler and a number of the nurses from Blessing Hospital. A report from the Entertainment committee showed a balance in its hands of \$35.50 as a result of the August meeting and excursion. Dr. G. A. Lightl, of Plainville, was declared elected to membership in the society, and the application of Dr. A. W. Miles was referred to Board of Censors. A committee of arrangements was named to look after the details anent the meeting of District Medical Society in this city, October 25. Luncheon was served at Newcomb Hotel.

In the afternoon Dr. E. Zimmermann read a clinical report of a case of perityphlitis which resembled that of acute appendicitis and ileocecal tuberculosis. A primary appendectomy was done, and then about three weeks later on account of obstruction of the bowels an intestinal anastomosis was made, using the Murphy button. The patient made a good recovery. This paper elicited quite a general discussion, the trend of which seemed to indicate that the right lower quadrant of the abdomen gives rise to troubles other than those in the appendix, whose pathology in these later years has rather obscured such conditions as typhlitis and perityphlitis.

Dr. J. A. Koch then presented an able paper on Dust: Its Relation to Disease, in which he showed that dust is a product of industrial and commercial activities, and by its pathogenic germs gives rise to numerous ills and diseases in the human and brute races. An interesting discussion followed this paper as well as that of Dr. Charles E. Ericson on Domestic Animals as a Source of Contagion. This paper was one broad and general in its scope and emphasized the danger to man of contagion from the domestic animals and pets.

Dr. R. J. Christie showed a specimen from a case of appendicitis fulminans successfully operated upon by himself and Dr. Rice. The interesting features being the rapidity of the onset, at 5 o'clock in the morning, and when operated upon at 3 p. m. the same day the pelvis and abdomen were almost filled with flocculent pus. The Fowler position and continuous installation of normal saline brought a good recovery. Dr. Otis Johnston showed a specimen of multilocular ovarian cyst, containing over a gallon of fluid. The patient was a young woman, 22 years old, of athletic habits.

CLARENCE A. WELLS, Secretary.

### DOMESTIC ANIMALS AS A SOURCE OF CONTAGION.

CHARLES E. ERICSON, M.D.  
QUINCY, ILL.

The question of the relation of animal disease to the public health is one which has not until comparatively recent years attracted the scientific study which its importance demands. This statement becomes self-evident when we consider that to-day the prophylaxis of disease is decreasing our death rate fully as much if not more than specific medication.

The animal organism is a complicated machine; we do not know all the physiological laws which control it, neither are we absolutely certain of the best means by which we can to a great extent prevent the spread of disease, not only among ourselves, but among our domesticated animals as well. It is not only

true that human life is in danger by the consumption of products of previously diseased animals or from the consumption of improperly cooked flesh, but quite a number of animal diseases are capable of being transmitted by direct means. With the extension of civilization the diseases of man and animals follow a similar course. If the march of empire makes its way westward disease accompanies it.

In all strictly contagious diseases in which the infection is due to a specific micro-organism the elements causing infection are generated within the diseased organism, pass off with the excretions or are attached to them. It is well understood that whenever infectious organisms are produced their generation and promulgation depend upon three requisites for their growth, i. e., heat, moisture and light. The manner of their propagation, whether by direct cell division or by spore formation, is of little interest to us here. There is, however, no more important question than as to the means by which they become dispersed from their place of origin and again the manner in which they enter the animal organism. Briefly, this may be summarized as follows: 1. By direct inoculation. 2. By means of infected water or milk supply. 3. By consumption of flesh of diseased animals. 4. By means of flies and insects.

In the consideration of the diseases of our domesticated animals which are communicable to man, we find that the following are the more important: 1. Diseases of cattle. (a) Tuberculosis, (b) anthrax, (c) *tenia saginata*, (d) actinomycosis. 2. Diseases of the dog. (a) *Tenia ecchinococcus*, (b) rabies. 3. Diseases of the horse. (a) Glanders. 4. Diseases of the hog. (a) *Trichiniasis*. 5. The exanthemata transmitted by the common house pets.

When we consider that a large proportion of our meat and milk supplies are derived from the bovines, the possibility of a tubercular infection from this source becomes an important etiological factor. In 1898 Theobald Smith and later Koch contended that bovine and human tuberculosis were separate infections. There is still a difference of opinion as regards this question, though most authorities are inclined to share the views of Koch and Smith.

Tubercle bacilli have been found in cow's milk, and there can be no doubt that in some cases children are infected in this manner. There are many, however, who are inclined to the belief that this form of infection is not as frequent as was one time supposed. Milk that contains tubercle bacilli would produce primary intestinal tuberculosis. This condition, however, is comparatively rare if the enormous frequency of tuberculosis in cattle is considered. The highest statistics gives 7.4 per cent. (Heller), the lowest 0.5 per cent. (Ganghofner) of primary mesenteric or intestinal tuberculosis in children. The statistics given by English writers are, however, much higher. The statistics given by Ganghofner show practically no relation between the occurrence of human tuberculosis and that of mammary tuberculosis of the cattle in the same districts. The tubercle bacillus has also been demonstrated in butter, which on experiment has proved virulent toward animals. In a few isolated cases the meat of diseased animals has proved infectious toward man. Owing to the fact that tuberculosis of muscle is extremely rare, the source of infection might have been the result of contamination with tubercular material from other portions of the animal body.

When we consider the striking similarity between certain forms of animal and human tuberculosis, as well as certain conditions determined experimentally, we can not fail but recognize the close analogy and resemblance of certain details. Intravenous injections have produced alterations practically identical with acute general miliary tuberculosis in man. The changes in the intestinal tract consequent upon and resulting from experimental feeding are practically analogous to the intestinal tuberculosis, both isolated and combined, in man. The corneal, genital, oral and other forms of tuberculosis resemble more or less perfectly the same forms. The infection involving the lymphatic glands, secondary to infections from the mouth, nose, etc., correspond closely with the gland diseases grouped as tuberculosis.

It has been noticed that following experimental inhalations in certain animals, especially the guinea-pigs, there is an absence of the cavities characteristic of the



consumptive, but this is probably due to the fact that the rapid distribution of the bacilli caused death before cavity formation. In some cases, however, in which the progress of the disease is impeded, as in those cases where the inhalation is small in amount, cavities may occasionally develop.

Even in ancient times anthrax was known as a pestilence of animals and as such was particularly feared. In 1849 Pollender first recognized the presence of the anthrax bacillus in the blood of animals infected with the disease, and in 1855 correctly designated it as being of vegetable origin. In 1863 Davaine was the first to show the causative relation of these bacilli to anthrax, his observations being proved correct at a later date by Robert Koch.

Anthrax bacilli which find their way into the ground in the discharges of affected animals or in the burying of an anthrax cadaver may, under favorable conditions, develop and form spores which infect plants growing in the earth. The conditions favorable for their saprophytic growth are found in certain regions, especially near rivers and swamps, where the requisites, heat, moisture and plentiful amounts of decaying vegetable matter are in abundance. This explains why in certain regions anthrax occurs so frequently in animals and why at certain times the disease may become endemic. It also explains why the disease is practically limited to herbivorous animals and why the carnivora are rarely attacked. Although it is possible for the disease to be transmitted by means of insects, the latter having taken up the poison from the diseased animal or from the cadaver, the greater majority of cases result from the ingestion of spores with the food.

The clinical picture of anthrax in animals is not always the same. If the infection arises as a result of wounds in the skin or mucous membranes, local phenomena characteristic of anthrax develop—edema and carbuncle, followed by general infection and consequent symptoms. In sheep the gastrointestinal form of the disease may terminate fatally within a very short time; in cattle the acute cases may last from a few hours up to a day. The subacute cases are of longer duration.

Since the source of anthrax infection in man is exclusively from animals, occupations which bring them in direct contact with infected animals or their cadavers are most liable to infection. This list includes cattle dealers, shepherds, butchers and dealers in hides. Those who handle the products of infected animals and those who use them in manufacture are also occasionally attacked. These include tanners, furriers, etc. Fortunately, man is less liable to the infection than are herbivorous animals, and consequently even in times of an epidemic there is a disproportion of cases in man and animals.

The infective agent of anthrax may enter the human organism in different ways. If by the skin or mucous membranes there has been practically always a solution of continuity at the point of origin. Again, the spores of the anthrax bacilli may be shaken off with the dust and then inspired into the lungs of workman handling the products of infected animals. There then develops the so-called pulmonary form of the disease. A much rarer form of the infection is for the spores of the infective organism to come directly or indirectly in contact with the food ingested, reach the oral cavity and thus enter the gastrointestinal tract, producing this form of the disease. The gastrointestinal form of the disease has also resulted from the ingestion of milk and its products, and from eating the meat of an anthrax animal. Several anthrax epidemics have occurred after the use of infected meat. During these epidemics, however, it was observed that the use of meat so infected did not always produce the disease, for after the ingestion of quite a large amount, even when not properly cooked, the disease did not follow. This is probably explained by the fact that the infective agent was destroyed by the gastric juice, a fact which has been determined experimentally in animals. In rare cases the point of anthrax infection can not be determined, nor will an autopsy clear the situation.

The *tenia saginata* or beef tapeworm is the most common tapeworm of North America. The parasite is acquired by man through the eating of raw beef. It has

not been definitely decided whether the "measles" of this worm occur in man, but some authors (Arndt, Heller) believe that such an occurrence does take place.

Actinomyces is a chronic infective disorder produced by the ray fungus, streptothrix actinomyces. The disease is widespread among cattle and occurs to some extent among pigs. The name actinomyces was first given to the disease by Bollinger in 1877, the ray fungus as the true cause of the disease being first recognized then. In 1850 Davaine described the yellowish granules in the fungus, with its whey-like formation, but he failed to identify it correctly. A short time after the condition had been recognized by Bollinger the same disease occurring in man was correctly diagnosed.

Notwithstanding the fact that actinomyces in cattle is a comparatively frequent affection, its direct transmission to man is comparatively infrequent. Those cases in which there has been a possibility of direct infection have occurred in individuals who were occupied with the care of looking after sick animals. Bollinger assumed that the disease was transmitted by the milk, but this avenue as well as by means of infected meat must be doubted. The disease for the most part involves the muscular structures of the tongue, pharynx and esophagus in those cattle affected, and practically disorganizes these structures. The involvement of other muscles in cattle is rare, though it does occur to some extent in pigs. Again, the fungus is very susceptible to heat, a temperature of 75 C. having destroyed it after a period of five minutes. Meat then sufficiently cooked would be practically harmless.

It is hardly questionable that in man similar to the case of cattle, that the source of infection is due to vegetable constituents to which the fungus adheres. That plants can be easily infected has been readily demonstrated, the fungus having been found on barley, rye and beans; in earth infected with the fungus the latter has been demonstrated microscopically as well as by culture. That vegetable substances play an important rôle in the causation of this disease is shown by the fact that the condition develops frequently in those who are in the habit of chewing grain and placing blades of straw, etc., in their mouths. Statistics have shown that by far the greater number of cases occur in the country from August to January, during the period when the grain has ripened and is dry, as well as during the time when it is handled, marketed and shipped.

The portal of entrance can not be determined in all cases, but for the most part the infection can be said to have come through the mucous membrane of the oral and pharyngeal cavities. Some investigators are inclined to attribute to caries of the teeth an important etiological rôle. The development of the fungus within a carious tooth has never been demonstrated, but owing to the fact that defective teeth are usually injurious to the mucous membrane of the mouth this condition is only probably an important predisposing factor.

The fungus rarely finds its way into the human body by means of the respiratory tract or of deeper parts of the gastrointestinal tract.

The tenia cecinoceus in man is found most often in those countries in which man is brought into direct contact with the dog. This is particularly so in Australia and in Iceland; in Great Britain and in North America the disease is comparatively rare.

The clinical picture of human hydrophobia or rabies, when once fully established, is unquestionably one of the saddest conditions which occurs during the practice of the physician. The sudden onset, the long period of incubation, the fear of the development of the disease, the frightful, painful suffering itself and finally the uncertainty of a cure when once established all contribute to make this one of the most terrible conditions to which human flesh is heir.

The contagious element is as yet unknown, but undoubtedly exists in the saliva of the rabid animal. This, then, can only enter the human organism as a result of a bite from the animal so afflicted. Theoretically, a wound could be so infected and this has been proved to be correct experimentally, but in practice practically all cases follow the bite of the rabid animal, nine-tenths of the cases being attributed to the dog.

While dogs are perhaps the most frequently affected with rabies, practically

all mammals, wild or tame, may be attacked. The long period of incubation is naturally also responsible for the fact that the infection is often carried to places quite remote and then suddenly appears again. While the saliva and salivary glands have long been recognized as one of the chief sources of the infectious material, whether bacterial or chemical, it has also been found in other structures, namely, the tear glands, pancreas, mammary glands, testicles, adrenal bodies, etc. The contagious element, however, is found in largest amounts in the nervous system, the central nervous system being for the most part involved.

As regards susceptibility, it may be said that practically all are susceptible. It has been said that the danger of contracting the disease is influenced decidedly by the extent and seat of the infecting bite. Large, deep and numerous wounds are considered the most dangerous. Those involving the face and hands are more liable to be followed by symptoms of the disease than if other portions of the body were the seat of origin.

The *Bacillus Mallei*, the infectious agent causing glanders, was discovered by Loeffler and Schutz. The transmissibility of glanders from animal to animal has been known since the fifth century, but the knowledge that man could be infected from a diseased animal is due to Oslander, who first recognized it in 1783.

In about 90 per cent. of the cases in the horse the affection is chronic, in some cases lasting several years. The nasal mucosa is usually first attacked and later general symptoms, with perhaps involvement of the respiratory tract.

Fortunately, of late years the transmission of the *Bacillus Mallei* to man has been a comparatively rare occurrence. Since the transmission is, however, in nearly every case direct, the occurrence in hostlers, coachmen and others connected with the handling of horses can be easily explained.

The agent of infection most generally enters the organism by way of the skin and the mucous membrane, an abrasion of these structures being required. The pulmonary method of invasion has not as yet been recognized. Infection of the gastrointestinal tract is also doubtful. To determine this question, De-croix, upon several occasions, ate the meat of animals infected with glanders without becoming ill.

Man is infected with trichinosis by eating the flesh of the trichinous hog. Statistics given by the Germans, in whose country a thorough microscopic examination of all swine flesh is made, shows the proportion of trichinous hogs to be about one in eighteen hundred. The proportion in this country is about the same.

The liability to infection depends entirely upon the mode of preparing the meat. If all parts of the meat are brought to the boiling point the parasite is destroyed, but in the large joints the central portion is often not brought to this temperature, and hence, if this portion of the meat is eaten, there is a considerable danger of infection. The greatest number of cases probably occur in Germany where raw ham and wurst are freely eaten. In this country as well, the greatest number of cases have been among the Germans. Salting and smoking the meat are not always sufficient, as experiments have shown that animals may be infected when fed with meat so prepared.

Sporadic forms of the disease are more frequent than supposed. Osler gives statistics of 505 unselected autopsies with 27 cases of trichinosis having been found. The subjects had all died of other causes. Extensive epidemics may occur, the most frequent being those reported in northern Germany.

Recognizing, then, the importance and frequency of the diseases of our domestic animals which are transmissible to man, the question of hygiene as affecting the public health resolves itself into a few brief statements:

1. All animals known to be suffering from tuberculosis, glanders, actinomyco-sis, etc., should be at once slaughtered and their carcasses cremated.

2. Dogs known to be suffering from hydrophobia should be at once killed; if, however, there is some question as to whether or not the disease is present the animal should be locked up where it can do no harm, because in some cases the elements of uncertainty will do as much damage to the individual as the disease itself.



3. There should be a thorough inspection of all meat and milk supplies. This preferably should be governmental.

4. All meats should be thoroughly cooked before ingestion.

5. Animals known to be suffering from any one of these transmissible diseases should be handled by those familiar with their nature and who will take the necessary precautions to prevent their transmission.

#### DUST: ITS RELATION TO DISEASE.

JOHN A. KOCH, M.D.

QUINCY, ILL.

Dust, fine dry particles of earth, organic and inorganic matter, so comminuted that they may be raised and wafted by the wind or the circulation of air, as a factor in disease, as a neglected factor in ill health, is of interest not only to the hygienist, but also to the physician. No one will dispute the fact that air is more important to the perpetuation of human life than water or food, for while cases are on record in which persons have lived many days without water, and even for weeks without food, we know that the cessation of respiration for even a few minutes is fatal to life. In spite of this, though we hear constantly of the measures taken to improve the water supply and of legislative enactments to prevent the adulteration of food, the purification of the air which is so important for our comfort and health is rarely referred to. We are becoming so careful in regard to our water that many will drink only of that which is especially distilled, and so particular about our food that we will eat only such as is prepared by men of special reputation for cleanliness and purity, but we take into our respiratory passages without a thought air vitiated with millions of particles of dust.

Dust may be said to be a product of human activity, and is divided into four kinds: 1, Common country dust and road dust; 2, city dust; 3, occupation dust; 4, house dust. Country dust is made up chiefly of mineral matter with only a small admixture of vegetable matter. Of bacteria there may be found the saprophytic and certain forms of non-pathogenic. Of the pathogenic variety about the only one to be found and the one to be greatly feared is the *Tetanus bacillus*. It has been shown by various investigators that the dust of hay, of old houses or cobwebs from stables produces tetanus. There are stables where tetanus is produced very often, and even healthy animals are covered with the specific bacilli in such places.

These fall off during the combing of the horses and may infect others. In these stables everything becomes infectious, the manure, the dust, the utensils, and even the clothing of the hostlers.

City dust is composed mainly of vegetable matter which originally existed in the form of hay, oats and corn, with a variable admixture of mineral matter, soot and additions from man himself, especially in the form of saliva and abnormal secretions from the mouth. Bacteria of the pathogenic and non-pathogenic variety are formed abundantly. The pathogenic bacteria are principally pus micrococci, pneumococci and influenza bacilli; the tubercle bacilli is very infrequently found in street dust.

The extraordinary frequency of pulmonary tuberculosis and the enormous quantities of sputum containing the tubercle bacilli that was expectorated daily by consumptives led to the belief that the germ was to be found everywhere where man lived. That with every inspiration we were inhaling the germs and that if no one died of tuberculosis it was said that a want of disposition to tuberculosis saved him. We may thank Cornet of Berlin for a total change of this view. He worked several years to find all the places where the tubercle bacilli might be, outside of the body. He examined dust in all conceivable localities, in houses, hospitals, jails, streets, etc., dust on walls, furniture, picture moldings, picture frames, floors, etc., for the bacillus. As a reagent he used the guinea-pig; dust in sterilized bouillon was injected in the peritoneal cavity. The results of these investigations showed with great certainty that the tubercle bacillus was not ubiquitous, that it was only formed in such localities where consumptives



lived who were uncleanly in their habits, especially in regard to expectoration. In the atmosphere at large the tubercle bacilli are invariably destroyed by the action of light.

The danger of infection from the bacillus is not to be ignored, however. It is principally the minute mineral particles in dust that is to be feared. These mineral particles are sharp and wound the delicate mucous membrane of the air passages and especially the alveoli, causing catarrhal conditions, bronchitis and such specific diseases that result from bacteria entering the system through these minute lacerations, and where these morbid conditions do not result we know that the resistance to disease or opsonic index is high. The pus micrococci that are an accompaniment of dust, besides being a cause of purulent nasopharyngeal, tonsillar, sinus and bronchial inflammations, may be a threefold factor in pulmonary tuberculosis.

First, it may act as a predisposing cause, as a direct physical irritant to the respiratory passages, thus inflaming the mucous membranes and weakening their resistance to bacillary invasion; second, it may carry infection by means of dried fresh tubercular sputum that some ignorant or careless consumptive has recently expectorated; third, it may aggravate tuberculosis by converting an incipient and curable case into one of rapid and virulent destruction of lung tissue because of the addition of pus-producing germs. Pulverized poison added, a mixed infection engendered and speedy dissolution follows. When will our municipal authorities see clearly, understand fully and act humanely? How long must the people submit to the present conditions of street dirt, little or no sprinkling and infantile methods of street cleaning?

A campaign against all the dust-raising activities of the city should be waged. The municipal authorities must be told and retold of the misery undoubtedly due to unnecessary dust prevalence in the city. Dust-free pavements are needed, dust-free methods of cleaning streets must be devised, street sprinkling must be thorough and improved methods of sweeping public meeting places are urgently necessary. In fact, a sterilizing and dust-free plan of sweeping churches, theaters, etc., should be enforced. Streets should be frequently flushed. All these things and more should be demanded of all city authorities by our medical societies. The public must be educated so we can have the aid of public opinion in securing these needs. Authoritative literature on the subject should be favorably presented to the newspapers and their active and sustained assistance invoked. The dwellers in the city who are susceptible to dust infection of course can not all remove to the country to be free from their disagreeable and dangerous idiosyncrasy; they are too many and new means of livelihood are not readily found. New means of prevention and cure while in the midst of infection must be devised.

As can readily be understood, dust is a result or accompaniment of many occupations. Its injurious effects depend first upon its quality, and second upon the amount of it which is taken in. In some trades its potency for evil is that of a veritable pestilence, while in others it amounts to little more than an inconvenience. Pulmonary disease the result of inhalation of minute particles is known as pneumoconiosis, especially these conditions resulting from occupation dust. The subject is so broad and is involved in various degrees with so many trades, that for the purposes of this article it will be necessary to condense it. The effects resulting from the inhalation of occupation dust are remote, unless the individual is a mouth breather or has some derangement of the nasal respiratory passage, when the effects are more immediate. In very many cases the effects are exciting and predisposing to other pulmonary and systematic diseases. The condition resulting from the inhalation of coal dust is known as anthracosis, from iron dust siderosis, copper, chalcosis, stone, chalicosis, sand or flint, silicosis, and so on. Prophylaxis has a very difficult task to accomplish in regard to the inhalation of occupation dust. It is easy to define, but difficult to fulfill. It consists in the prevention of the penetration of dust particles in the different trades and factories which are associated with the development of large quantities of dust. But the physician in recommending prophylactic measures in the sanitary

interest of the laborer has to consider the life of the respective industries, otherwise he might take radical steps and plead that no laborer should expose health and life to so injurious an occupation. This, however, might ruin trades which yield to many men the income which is required for their living.

Legislative steps should be taken to avoid the development of dust as much as possible. For this purpose the moistening, whenever possible, of the dust-producing materials is of advantage. Wherever this can not be done, it may be possible to settle the dust in the neighborhood of the laborer by sprinkling. Furthermore, the working rooms should be comparatively large and well ventilated, and ought to be provided with a plentiful supply of fresh air which completely removes the dust-filled air. Such principles are long since acknowledged and carried out as far as possible. While these precautions should be taken to make the trade as such, as safe as possible, individual prophylactic steps should be insisted upon more strenuously than they have been in the past. Laborers must have healthy respiratory organs if they intend to work at a trade which is connected with the development of large quantities of dust. Such a stipulation is humane and should be enforced by the law. Everybody who applies for a position in such a trade should have to undergo a careful physical examination. If only the slightest abnormality of the pulmonary apices can be demonstrated, if only the least sign of an emphysema exists, even if it can be proved that several attacks of bronchial catarrh have preceded, the employer must be prohibited from engaging such a man.

House dust is finally to be considered in a very brief way, but not because it is the least dangerous. The house is the place where infection is most developed; and by a house is meant any enclosure which may, by reason of negligence, uncleanly habits or indolence become dark, dirty, damp and ill ventilated. Under this category, then, are to be considered private dwellings, but also many other structures, such as clubs, hotels and similar places; in fact, any enclosure in which people may congregate.

Such enclosures are the real seeding ground for tuberculosis and other infections. If we had the custom of removing the footwear on entering houses instead of headgear, the morbidity, even the mortality, of the nation would be markedly reduced. Germs are carried in on the feet and dresses and propagate in places away from light and sunlight. As a measure of prevention there should be a total banishment of broom and duster and any other implement or device by which dust is set afloat, and if carpetings are to be retained, the adoption of mechanical appliances by the use of which no flying matter will be allowed to escape—this if necessary to be followed by the wiping of exposed surfaces and furniture with soft cloths. In a general way, it may be said that accumulation of dust in a city is the result of the ignorance of common sanitary laws, of apathy on the part of the citizens, and of bad politics in those having the management of municipal affairs. A spectacle of ignorance of common sanitary laws is seen wherever our streets are cleaned without previously sprinkling, and the carting away of the dust in wagons made up of loosely fitting boards, thus permitting the dust to again fall in the streets on the way to the dump. A housewife who allows dust to accumulate is called slovenly, a tidy housekeeper gets rid of the dust as soon as possible, and does not allow it to accumulate. We have not yet reached a point where we can make similar distinctions between cities. We speak simply of one city being less dirty than another. Although dust is a product of civilization, yet paradoxically as it may seem, the amount of dust in a city is not necessarily an index of a high degree of civilization, not more than is the presence of dirt and filth or its accumulation in a house an index of high social standing of a family.

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#### CARROLL COUNTY.

The Carroll County Medical Society met in Woodman Hall, Savanna, Tuesday, September 24, with President Porter in the chair. Those present were Drs. Melugin and Sagner, of Thomson, Burton, Grey, Hunter, Johnson, Lyness, Maloney, McGrath, Schreiter, of Savanna; Clay, Metcalf, Rice, Rinedollar, of Mount

Carroll; Porter, of Shannon; Harrison, of Chadwick; McPherson, of Hazelhurst; Hostetter, of Rockford, and Keith, of Clinton, Iowa.

Dr. Mary Sanger, of Thomson, reported a very interesting case of foreign body in the intestines. The patient, a child of 7 years, had, for a week, symptoms of obstruction. There was nausea and vomiting and a tumor, three by one and one-half inches, which changed positions; at one time in left iliac region, at another in cecum. The parents refused to have an operation until it became apparent that the child would die without it. A ball of hair was found to be the foreign body. The mother stated that during early childhood the girl had a habit of pulling out her hair and eating it, but for eighteen months no one had seen her do it.

Dr. W. N. McGrath, of Savanna, discussed in his paper the importance of pathology and symptoms of tubal pregnancy, then gave the history of a typical case. This was followed by the history of a case in which menstruation was normal throughout the time of pregnancy. Both patients made good recoveries following operation, which is the only procedure that is advocated previous to or at time of rupture. If patient's condition is good, the mortality following operation is not high; and in cases in which the patient is in poor condition operation, while followed by a high mortality, offers a much better chance of recovery than unaided Nature has.

Dr. Hunter's address on Hysteria with Report of Cases was a careful and interesting study. He believes "hysteria to be a psychopathia which defines itself as an affection of intelligence expressed in perverse or opposite reasoning and in the exercise of the will, manifesting itself in the performance of morally depraved acts or unreasonable things. Reason here plays a large part, but the faculty of reason can not be exercised without the faculty of intellect. Men can not perceive the distinction between right and wrong nor draw just conclusions from a comparison of two ideas, nor yet form a judgment without being able to understand, conceive, perceive and form ideas of memory and judgment. We, therefore, see that, while the faculties of intelligence and reason are very much akin, reason depends on intelligence. Will is the exercise of the ego. It is more than a mere desire, so that when emotion, which is passion independent of the will, or an instinctive impulse, manifests itself, the will would have to be abolished or in subjection. This I do not believe is the case; consequently I hold that in hysteria the emotions are not in evidence, and the crying and the laughing are so directly under the influence and direction of the will. To me, hysteria is not a paralysis of the will as expressed in Pagert's words, 'I can not will,' but rather an unreasoning will when intelligence and reason are perverted by a strongly over-estimated exercise of the will power."

Dr. Abram Hostetter, of Rockford, read a paper on "The Choice of an Anesthetic." It was a careful study of the subject, the result of much hospital experience. The article awakened an interesting and instructive discussion.

Dr. Nelson Rinedollar, of Mount Carroll, read a portion of Weir Mitchell's essay on Donald Ross. It included the Scotchman's splendid hymn of thanksgiving on his discovery of the zygotes.

The next meeting will be held in Mount Carroll December 10.

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### COOK COUNTY.

#### CHICAGO OPHTHALMOLOGICAL SOCIETY.

*Meeting, May 13, 1907.*

Dr. F. C. Hotz, President.

#### RETINITIS PROBABLY DUE TO CEREBELLAR TUMOR.

Dr. H. B. Young, Burlington, Iowa, made a report on a case of retinitis probably due to cerebellar tumor treated by tuberculin.

#### UNILATERAL VERNAL CONJUNCTIVITIS.

Dr. Casey A. Wood read a paper on vernal catarrh, exhibiting a case of unilateral vernal conjunctivitis and microscopic specimens of tissue removed. The



patient was a healthy girl of 11, with a marked ptosis of the left side. Almost the entire conjunctival surface is seen, on eversion of the lid, to be occupied by irregular, roughly polygonal, partly pedunculated, flat-topped masses of hardened tissue, distinctly separated by sulci which extend to the altered conjunctiva beneath, being in some instances 2 mm. deep. There were no nodes on the bulbar conjunctiva, although the upper sixth of the cornea was invaded by a number of new vessels which simulate to some extent the vascular pannus of trachoma. The right eye shows nothing to indicate the ravages of a past or present spring catarrh. Two months ago the cartilage-like masses were abscised under general anesthesia and their bases curetted. The pathologist's report showed a chronic hyperplasia of the epithelium and underlying connective tissue; the stroma is full of bundles of wavy, elastic fibers permeating the entire connective tissue structure. A great many eosinophiles were present. Improvement followed the employment of the *x*-rays and topical applications.

#### VERNAL CATARRH.

Dr. F. A. Phillips presented a case of palpebral vernal catarrh upon which a complete tarsectomy had been done by Dr. Beard upon one eye and a partial one upon the other, after all the usual methods of treatment had been employed. The operation had been attended by improvement. Dr. Phillips did not feel that the case was cured, but the patient had been comfortable for the past year.

Dr. E. V. L. Brown sectioned the tissue removed and found a typical proliferation of elastic tissue in large bundles forming the main bulk of the tarsal granules.

#### HERNIA CEREBRI.

Dr. Mortimer Frank exhibited a boy, 13 years old, who had a congenital hernia cerebri. There was absence of the brow and of the cilia down to the medium fissure, and the upper wall of the orbit was away back. The fundus was normal except for enlarged veins, both superior and inferior. Vision was 6/60, probably due to an astigmatic cornea.

#### CONSERVATION OF SYMPATHETIC NERVES IN ENUCLEATION.

Dr. George F. Suker read a paper on sympathetic nerves in relation to enucleations and presented a case. When an eye is to be enucleated the best possible cosmetic effect should be secured. Usually the connection of the nerve fibers passing to the lids is severed and destroyed, and there ensues a traumatic, sympathetic process which is unsightly. In the past four or five years he has been very careful not to sever or interfere with the lenticular ganglion so as to preserve the continuation of the nerve fibers of the lids. Since he has been doing that he has avoided subsequent drooping of the lids, as was shown by the patient exhibited. In most of the enucleations done prior to that time the lids drooped, and in the case of those that escaped he took it for granted that the nerve fibers were not interfered with during the operation.

#### DISSOCIATED NYSTAGMUS.

Dr. Willis O. Nance exhibited a case in a 17-months-old child. The tremulous movements of the left eye were rapid, while those of the right were scarcely noticeable; in fact when the eyes were turned to the extreme right no movement in this eye was perceptible. The movement of the eyes also differed as to direction, in that those of the left were at times horizontal, and at other times the eye moved in an oblique axis; the movements of the right were rotary. There was no muscular anomaly present, the ocular media were clear and there was no history of brain disease. The patient had a rather high degree of hypermetropic astigmatism with an oblique axis. The mother stated that the left eye began to "twitch" when the patient was 1½ months old and has continued since, while the right eye was perfectly quiet until six weeks ago, when she first noticed a tremulous movement.

Atropin was prescribed four weeks ago, when he first saw the case, and since that time there has been some diminution in the movements of the eye. This



leads him to believe that a correction of the refractive error may materially assist in the cure.

#### TYPICAL LIMBUS DERMOID.

Dr. Nance also exhibited a young man of 20 who had a typical limbus dermoid situated at the temporal aspect of the right eye. A number of coarse black hairs could be seen on the growth. The eye on which the growth was present was highly myopic and there was a marked degree of astigmatism present; the other eye was slightly hypermetropic. There were a number of opacities demonstrable in the lens; no other changes were discovered. The patient refused to have the growth removed.

#### ENTROPION WITH CORNEAL ULCER CONSECUTIVE TO A ZOSTER OPHTHALMOS.

Dr. F. A. Phillips exhibited a patient demonstrating this condition. The patient first appeared January 25, when he complained of an inflammation of the eye, which on inspection proved to be a corneal ulcer with shallow edges. There was a cicatricial entropion and anesthesia of the cornea. A year before he had been violently ill with the zoster ophthalmos and then there appeared the corneal ulcer, probably the result of the anesthesia of the cornea, and then the entropion. On the third day of his illness he became delirious and remained so for the greater part of five months. He then began to improve, and by the seventh month the zoster had healed. The eye remained sore the entire time, so that it is a question whether the cornea was involved at the time of the zoster. The ulcer has healed, and the cornea is being protected from the falling of foreign bodies on it, which served to prolong the ulceration. The patient was presented previous to operative procedure, so that the improvements which it was hoped to get could be noted.

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#### CHICAGO SURGICAL SOCIETY.

A regular meeting was held June 21, 1907, with the President, Dr. David W. Graham, in the chair.

#### DOUBLE CONGENITAL CERVICAL FISTULA.

Dr. William Hesser showed a boy who had had a double congenital cervical fistula from the time of birth. There were observed two little points at the lower part of the neck at the anterior border of the sterno-cleido-mastoid muscle, from which a mucoid substance exuded. This continued for many years until finally treatment was instituted and an attempt made to close the fistula by cauterization. The discharge began to be purulent, so that when he saw the patient, two months ago, there were two minute openings in the lower part of the neck, one on either side, symmetrically placed, from which pus could be expressed. A hard cord extended up into the neck and disappeared at the angle of the jaw. Considerable pus came out through the fistulous opening. He was unable to pass a probe up into the openings into the pharynx, but it was evident there was a communication there, because, if bitter fluids were injected, he was able to detect the taste. The treatment was radical. He described the operation he performed in this case, and said any sort of injection treatment and cauterization would do no good.

#### FRACTURE OF THE PATELLA.

Dr. Hessert showed a man who sustained a fracture of the patella. He presented the case as an excuse to say a few words about the treatment of fracture of the patella. He is firmly convinced that all fractures of the patella, where the surgeon has access to a modern hospital, should be operated on. He has never yet seen a case operated upon where there was not shown to be extensive laceration laterally of the capsule; there was always interposition of shreds of fibrous tissue between the bone surfaces with blood clots, which would make bony union improbable. Operative treatment is the best and surest.

Regarding the incision, he makes an incision with the convexity downward.

In regard to the further operation, he believes the simplest way to suture it is to throw a suture of kangaroo tendon or catgut around the periphery of the patella and bring it together in that way. Before doing that it is essential to get rid of the blood clot, and at this point it is important not to touch the wound with the fingers. Nor does he irrigate it, because both of these procedures may cause irritation, especially infection. He swabs out the joint carefully with sponges, held on forceps, and the finger is not put into the wound at any time. The wound is not touched with the fingers, which is one of the most important parts in the treatment of fracture of the patella. A circular suture of catgut or aluminum bronze is thrown around the patella. An important feature is to suture carefully the lateral lacerations of the capsule. When that is done, the skin is drawn over and sutured.

After referring to the after-treatment, which he believes is more important than the operation itself, he said that he considers it very essential to institute early passive motion and early massage. In this way, free mobilization is accomplished and a much better result is obtained than if the knees be put for three or four weeks in plaster casts.

#### PERFORATION OF ULCER FROM THE STOMACH.

Dr. Hessert said that this is the third case of perforation of the stomach which he has reported and presented to the society. About a year ago he presented a case of acute perforation of the stomach upon which he had operated and which got well. He also reported another case of chronic perforation of the stomach, which was mistaken for cancer, but which subsequently cleared up and proved to be a chronic perforation. He then gave the history of the third case in detail.

This third case was discussed freely by Drs. Frank, Graham and Fuller.

#### ESOPHAGEAL STRICTURE DUE TO THE TYPHOID FEVER.

Dr. Samuel C. Plummer showed this patient to the society Feb. 6, 1905. At that time he had a gastric fistula, the result of a gastrostomy. The gastrostomy was performed April 21, 1905. The case is interesting in its pathology, for the reason that the stricture of the esophagus was due to an attack of typhoid fever. Another interesting point was the great length of time during which the patient had an impassable stricture, namely, from May 4, 1905, to Sept. 29, 1905, more than four months, during which the smallest bogie could not be passed, nor could the patient swallow a drop of water. On the latter date the patient was able to swallow a fine silk thread, which was pulled out through the gastric fistula, and by pulling a larger thread through after a smaller one Dr. Plummer was able to dilate the stricture and later on to use bougies, and at the time he showed the patient before the society he could pass a No. 28 esophageal bougie. He still had a fistula.

On Feb. 20, 1905, the patient was anesthetized and the gastric fistula closed by dissecting away the scar tissue and separating the stomach wall from the abdominal wall sufficiently to insert sutures in the former. The abdominal wall was sutured and primary union took place. Since that time Dr. Plummer has occasionally passed large-sized bougies through the esophagus, and there does not seem to be any tendency to tightening down of the stricture. Since then the patient has gained in weight and is now strong and healthy.

#### DUPUYTREN'S CONTRACTION.

Dr. Plummer showed a case of Dupuytren's contraction. The patient was operated on four weeks ago. The wound healed by first intention, but after taking out the stitches the line of sutures broke down and a little infection occurred. This infection, while it delayed healing somewhat, was only superficial. He dissected out the palmar fascia, but the greatest trouble, he said, is in getting a flap where we will not get some sloughing of it. The thickened palmar fascia comes right up next to the skin, and the layer of adipose tissue between the skin

and the fascia is absorbed. The skin and fascia are one layer. When one dissects the fascia out, there is such a thin layer that it has poor nourishment. In one case he used the V-shaped flap of von Buseh, and the tip of the flap sloughed, so in this case he thought he would get a flap from the side where there was good nourishment from the proximal end. None of that sloughed, although the skin was cut off thin.

Dr. Frank said there is some question as to whether this is a case of Dupuytren's contraction or so-called hammer finger. He asked Dr. Plummer whether he opened the tendon sheath.

Dr. Plummer replied, "No."

Dr. Frank said he knew a family, in which three girls had these two fingers drawn down like this (indicating).

He had an idea that where the fingers are drawn down in the manner indicated the trouble lies a great deal in the tendon.

Dr. William Fuller called attention to a few points which differentiate a typical Dupuytren's contraction from a contraction of the fingers due to other causes. In a typical case of the former, the terminal phalanx of the affected finger will not, as a rule, be markedly flexed, and, as Dr. Plummer has pointed out, the skin will slide easily over the affected and flexed finger if the contracture is not a Dupuytren's; whereas, in the latter deformity, it will be adherent. He feels sure, from the description of the case, that there is no doubt as to the correctness of the diagnosis.

President Graham said, in regard to this particular case, he has no doubt of its being one of Dupuytren's contraction; nevertheless, in most of the cases seen, which come to the stage of operation, there is more of the palmar surfaces of the two fingers involved than there is in this case. Years ago surgeons did not dissect out the palmar fascia; they made subcutaneous multiple incisions, which were not satisfactory. It does not seem to him necessary to make a large flap. With a simple linear incision, lateral flaps can be made by undercutting, so that one can dissect out the fascia and thus avoid making a large flap. In fact, one will have less difficulty in dissecting out the palmar fascia by means of a simple linear incision, and he thinks better results can be obtained in that way than if a flap is made.

Dr. Plummer said there is no doubt about this being a case of Dupuytren's contraction, as the condition was typical.

Dr. Plummer showed a specimen of tubercular epididymitis. He also reported two cases of pylorectomy.

#### SURGERY OF THE PROSTATE.\*

WILLIAM F. SCOTT, M.D.

Attending Surgeon to Oak Park Hospital, Oak Park, Ill., Attending Gynecologist  
West Side Hospital, Chicago, Ill.

MAYWOOD, ILL.

The prostate is described by anatomists as being an accessory generative organ. Its position is posterior to the symphysis pubis immediately below the neck of the bladder, and corresponds to the position of the first portion of the urethra. The gross appearance would lead one to believe that it completely surrounds the urethra, but in reality glandular substance occupies only the posterior and lateral aspect in the form of a horseshoe open in front. This open part of the circuit being completed by the prostate muscle, which is continuous below with the compressor urethra muscle, which is striated, the upper border being non-striated and continuous with the muscular coat of the bladder which surrounds the internal urethral orifice. The base of the prostate is directed upward and backward and the apex downward and forward. The size is  $1\frac{1}{2}$  inches at the widest portion, its length is  $1\frac{3}{4}$  inches, the anterior posterior diameter being

\* Read before a joint meeting of the Aux Plaines Branch of the Chicago Medical Society and the Fox River Valley Medical Society, held at Wheaton, Ill., June 26, 1907.



about  $\frac{3}{4}$  inch. The prostate consists of two lateral lobes joined posteriorly by an isthmus of prostatic substance. The so-called middle lobe is not a normal condition, but an hypertrophy of that portion of the prostate anterior to the ejaculatory duct and above its opening. The weight of the normal prostate is about 6 drams. The gland is bounded in front by the symphysis pubis except for an interposed layer of fat, areolar tissue, and the prostatic plexus of veins. Posteriorly, it is in relation with the rectum. Laterally, it is in relation to the anterior portion of the levator ani muscle. The prostate is inclosed by a dense fibrous capsule, deflected from the recto-vesical fascia, and being continuous in front with the pubo-prostatic or anterior true ligament of the bladder.

The physiology of the prostate is largely supposition. The character of its histological make-up resembles very much the uterus, and is usually classed as a secretory organ. The product of its secretory function is albuminoid, is milky in appearance, and is supposed to aid in preserving the viability of the spermatozoa or to aid in its transportation, or possibly both.

In this paper I have purposely avoided the large portion of the infrequent pathological conditions, and shall confine myself largely to the diagnosis and treatment of chronic hypertrophy. The reason for so doing is that, without question, there is no surgical condition to which man is heir that is so uniformly fatal under the average treatment, and also that there is no surgical operation of the major type which produces so great relief to patients. The writer is firmly convinced that the mortality rate in surgery of the prostate, if modern and sane methods are followed, is grossly exaggerated. This broadcast idea which has taken possession of altogether too many general practitioners of our profession has biased this judgment, thereby preventing this class of tortured patients from reaching the surgeon and gaining relief from his suffering and the surely fatal effect of daily catheterization. And it is surely fatal if persisted in, be it done cleanly or otherwise, the only difference being in the time necessary to bring about the fatality. So often I have heard good and competent men tell a patient that the only danger from the catheter was in its being used in a surgically unclean manner, a statement which is absolutely untrue, and gives the patient false assurance which uniformly leads to fatal results if not relieved by surgical treatment. It may be that I am laying myself liable to criticism for placing so many positive statements about results, but they are facts, and it is my object to get the members of our society alert to the fact that there is other abdominal pathology which demands their attention besides that indicated by McBurney's point. With these remarks I have indicated that my paper shall be confined to that condition known as chronic hypertrophy of the prostate. Hypertrophy is the one condition which develops without involving surrounding organs directly. Tuberculosis of this organ is practically always secondary to tubercular epididymitis, and again malignancy is nearly always of metastatic origin.

#### ETIOLOGY.

The etiology of prostatic hypertrophy as advanced by different writers has been most unsatisfactory for the reason that nearly all have tried to find a single cause. There is, however, one item of the discussion upon which all are agreed, and that is that it is inflammatory in its origin. Gonorrhea is the favorite etiological factor given, but it will not fill the bill at all, as all are familiar with the great number of gonorrhea infections as compared to the small number of hypertrophied prostates. And, again, the large number of hypertrophied prostates in which no history of the previous gonorrhea can be obtained. But since all are agreed that the condition is of inflammatory origin, it is safe to place gonorrhea as one of the exciting causes. There are two other conditions which should be considered seriously in a discussion of the etiology: First, repeated and persistent sexual excitement without completion of the sexual act; and second, excessive or perverted sexual relations. That physiological engorgement of the prostate which takes place during normal coitis thereby being so frequent or persistent, may instead of being a physiological engorgement become



a means of cell proliferation as a result of actual inflammation. This theory seems to me to be more reasonable than any of the many causes which have been advanced up to the present time.

The pathological anatomy of prostate hypertrophy is divided: First, increase of the connective tissue of the muscle element of the gland producing the hard or fibrous enlargement. Second, a proliferation of the glandular or secreting element producing the soft or medullary type. It is to my mind a faulty classification for the reason that a medullary hypertrophy of the prostate sufficient to produce symptoms which would warrant operation has never occurred. I have seen three cases in which a part of the gland might be called medullary enlargement, but the major part of the hypertrophy was due to connective tissue proliferation.

It might be well to say at this point that the symptoms of prostatic hypertrophy are dependent upon the amount of interference with the normal emptying of the urinary bladder. Therefore, the size of the organ may have very little to do with it, a fact which must be considered at time of examination before intelligent advice as to treatment can be given. The train of symptoms usually runs something like the following: A patient past 50 years of age first notices that he must get up at night to urinate. A little later he may have difficulty in getting the stream started. He notices that it is necessary to bring into play the aid of the abdominal muscles to completely empty the bladder. Especially is this true if he has had a long ride in the cold and has resisted the desire to urinate, or has been out with boys and had too many drinks resulting in his sexual functions being excited by coming in contact with women of questionable character. There is intermittent but gradual exaggeration of the previously mentioned symptoms until finally there is a time when complete retention occurs, making it necessary to call the doctor to use the catheter, which is followed after one or more catheterizations by a period of complete freedom from urinary trouble. After an indefinite time, the same symptoms again appear and are again treated and relieved in the same manner. The patient observes, however, that the period of intervening time between attacks is materially shortened until finally it becomes necessary to use the catheter every time the bladder is emptied. Just about this time the family doctor gets tired of being aroused from bed every night on account of one patient and proceeds to teach him how to catheterize himself. The ability of the doctor as a teacher and the susceptibility of the patient as a student is the point on which hinges the length of time necessary for above-mentioned patient to kill himself. Please take notice that I have said the length of time only depends on how well the process is carried out, but the inevitable is sure to overtake him sooner or later as a result. The symptoms enumerated are those which arise early in the disease, no mention having been made of the result of the bladder infection or the nervous train of symptoms which frequently follow. What is inferred by nervous symptoms is the change which takes place in the general mental make-up of the patient. From the man who has enjoyed the association of his family and friends and enjoyed the usual entertainment and pleasures of life, he becomes morose, irritable, hysterical, despondent and with very good reason. For he is constantly anticipating the torture he must endure when it becomes necessary to empty his bladder. It is difficult to see how this class of patients could enjoy entertainment when they must have uppermost in mind the fact that a Nélaton catheter with its discomfort and danger must be a constant companion. I have in mind one very intelligent patient who came under observation, early in my prostatic work, and used as a final statement in begging for relief that he was willing to assume all danger and responsibility in any procedure necessary to gain relief, and if it was not done he would positively take his life. The statement was invited by my hesitation to operate on account of the patient being 79 years of age. I might add that he was subjected to suprapubic prostatectomy the following day and made an uneventful recovery. The specimen is here for your inspection, and is of interest for no other reason than its great size. I will have something more to say about this same patient in discussing the sequelæ of prostatectomy.

The report of urine examination findings of these patients depends, of course, upon the condition of the bladder itself. If no material infection has taken place the urine shows nothing abnormal except frequently a trace of albumin, and may contain blood cells from the bladder squeezing down upon the inflamed so-called middle lobe or from traumatism resulting from catheterization. Spermatozoa are sometimes found because the prostate has lost its function of obstructing by engorgement of the flow of semen in the direction of the bladder during ejaculation. It is noticed that the force of the urinary stream is greatly diminished and that dribbling occurs after urination. These symptoms may be exaggerated sufficiently to cause partial or complete retention. In the morning a gleet discharge is likely to accompany defecation, which the patient may believe to be semen, and cause him considerable worry. Usually the microscope fails to locate spermatozoa, but demonstrates that it is simply mucus with sometimes a few blood or pus cells. The diagnosis of chronic prostatic hypertrophy is usually easily made unless gonorrhea of comparatively recent date complicates the history. Great stress has been laid upon the value of cystoscopic examination. It may be of value in isolated cases, but in the large majority of patients who have ordinary intelligence, the history, together with an examination of the urine and a bimanual examination with one finger in the rectum, is sufficient. The tortuous character of the canal due to unequal hypertrophy of different portions of the gland may make the introduction of a cystoscope a physical impossibility. The character of the bladder as to size and condition of its wall depend altogether on the stage of the disease and the degree of infection. A very wide range of susceptibility to infection occurs, and if it happens to be one that is tolerant the bladder may be capable of holding enormous quantities of urine with overflow (a condition of retention with incontinence), with a minimum of discomfort. This kind of bladder may tolerate a residual urine of several ounces for a considerable time without material change in the organ itself. On the other hand, we may have a very nervous patient with irritable bladder, which is susceptible to infection, these symptoms leading to frequent urination or to frequent use of the catheter, thereby preventing a complete filling of the bladder and resulting in great contracture of the organ. These two conditions of the bladder are worth your consideration, for the reason that in the operation of prostatectomy the entrance into the contracted bladder is accomplished with considerable more difficulty if the suprapubic route is selected. To be brief, a physical examination of a patient supposed to have prostatic trouble should be conducted in the following manner: He should first be instructed to urinate, after which, with the patient lying on his back, one finger should be pressed into the rectum, the other hand pressing down above the pubes. In this manner the character of the prostate as to the amount of enlargement posteriorly, its consistency, its condition as to the degree of sensitiveness, etc., may be made out. Unfortunately, the hypertrophied portion which produces symptoms is usually that which projects into the bladder, in which case the rectal examination is of much less value. At this point of the physical examination the bladder should be emptied by catheter, the urine measured and carefully preserved for the microscopical examination. Again, bimanual examination should be made by pressing the prostate well up by the finger in the rectum and an attempt made to palpate through the abdominal wall, a procedure which can only be well done in thin patients who can be taught to relax perfectly. This part of the examination I have accomplished very satisfactorily on two different occasions, the last of which was only a few days ago. The treatment of chronic prostatic hypertrophy has as yet not reached the uniformity its importance demands. There are several reasons for this, among which might be mentioned the fact that anything like reasonable attempts at permanent relief are of comparatively recent origin.

Progress has been slow because it has seemed to me that most men attempting original work along these lines have been narrowed by the fact that he was riding a hobby. I have in mind a writer who describes the operation of enucleation through the perineum, how easy it is accomplished, but spoils the whole thing

by describing a biting forceps which he has devised to be used to bite it out in case enucleation can not be accomplished. Any of you who may have seen these forceps used I am sure will join me in saying that it is certainly a very unsurgical procedure. Another writer who favors the perineal route spends considerable time and energy in condemning the suprapubic route, and in a very dramatic way tells of the horrible insult to the bladder of opening both the anterior and posterior walls. From what I have said you no doubt are of the opinion that I am also possessed of a fairly well-developed hobby. I must acknowledge the corn, and will proceed to tell why I believe the suprapubic route to be one of choice. The reason which stands out clearest of all is, first, that it can be applied to all cases; second, it can be accomplished in a much shorter period of time, a fact which is frequently of material importance; third, it gives freer latitude of examining the bladder and prostate, thereby making it possible for a complete diagnosis before enucleation is begun; fourth, there is less danger of infection during after-treatment, the importance of which is proved by a glance at the mortality records; fifth, that it is possible to make a complete enucleation in practically every case.

I have purposely avoided a description of other surgical treatment of hypertrophy of the prostate because they are of so little value on account of the mortality and the uncertainty of relief to the patient. The mortality in the Bottini operation is now known to be greater than that of prostatectomy. It is uncertain of results and makes prostatectomy much more difficult.

The technic of the operation is so well known that it seems hardly worth while to take up your time by its description. Yet there are several things as to the minute detail which may make it of interest. The preparation of the patient does not differ materially from that prescribed in any other major abdominal operation except that the patient should not be confined to the bed until he is ready to go to the operating room, for the reason that most of them are old and old people do not bear well long confinement in bed. It is my belief that preparation of the bladder before operation day is of little value, as the irritation of the bladder and prostate by instrumentation incident to bladder irrigation overbalances any good which may be accomplished. My plan has been to operate as soon as ordinary preparation can be made after the patient enters the hospital. The anesthetic to be selected is dependent on the condition of the patient's kidneys and on his conduct when anesthesia is under way. The main point in the anesthetic is to use as little as possible so as to have the patient just sufficiently relaxed to make operation possible. This point is of particular value up to the time of opening the bladder, as patients sometimes act very badly at this time. After the bladder has been opened and the effect of so doing has passed away, the anesthesia may be made more profound with a greater degree of safety. After the pubis and lower abdomen has been prepared without the use of irritating antiseptics, a silver catheter with a long curve is passed into the bladder and its contents allowed to escape, after which the bladder should be filled and emptied twice with boracic acid solution, normal salt solution or sterile water. It is again filled and the catheter left to an assistant, who will hold his finger over the end to prevent the bladder from emptying, and will depress it to make it act as a guide in opening the bladder. The bladder being opened, it is well to prevent too rapid escape of the contents, thereby avoiding the collapse which sometimes happens if such precaution is not observed. The first two fingers of the left hand should now be passed into the bladder and a rapid but thorough examination of its interior made, as to the character of its walls, the presence of stone and the size and contour of the prostate, etc. Using the same two fingers as a guide the posterior wall of the bladder either over the most prominent part of the tumor or just at the urethral opening is snipped through with a curved scissors with two sharp points. The first finger of the left hand is passed into this opening. An assistant now lifts the right leg of the patient sufficient to allow the first and second fingers of the right gloved hand to be passed into the rectum, pressing the prostate well up. The enucleation is now rapidly and accurately completed



and delivered into the bladder. An assistant now peels off the glove permitting the operator to complete the operation without delay or danger of infection. If the gland is of considerable size it may be necessary to grasp it with a double tenaculum forceps in order to deliver through the abdominal wound.

The difficulties of the operation vary considerably, and I believe the anesthetist is responsible far more than from any other source. He has been charged not to produce too profound anesthesia, and as a result he is apt to err in the opposite direction. Rigidity of the abdominal muscles makes enucleation very difficult, soon causing the finger of the operator to tire and cramp, very much as does a contracting uterus in the operation of a placental separation. As has been suggested before, the nearer the diseased gland approaches the true fibrous hypertrophy, the easier the separation can be accomplished. The point of making the snip in the posterior wall of the bladder has a great deal to do with the ease of accomplishment of the operation. The point selected should be posterior to and close up to the urethral orifice, as it permits of complete removal with a minimum amount of damage to the bladder wall. It is my opinion that there is no surgical operation in which after-treatment plays such an important part as in the subject before us. When the gland has been enucleated quite active hemorrhage always follows, which is usually arrested in a few moments by irrigation with moderately warm sterile water, the point of the irrigation tube being carried into the cavity left after removal. If hemorrhage does not cease in this way it becomes necessary to pack the bleeding cavity with plain gauze or it may become necessary to pack the entire bladder, using a very long strip and leaving one end protrude along the side of the soft rubber drainage tube which is sutured in place. Usually two mass stitches above and one or two below the drain is sufficient to close the wound, the first stitch on either side of the drain catching the bladder wall. Patient is placed in bed with the head and shoulders elevated. The first irrigation should be made at the end of twenty to twenty-four hours, at which time the gauze packing, if any has been used, is removed. The irrigation should be made through a metal catheter because it can be introduced with less pain than soft rubber and avoids the danger of disturbing the seat of operation by passing under the bladder wall. On the third day the tube drain may be removed and the irrigating fluid be allowed to flow out through the wound, which it does very freely. The question of irrigation has been a source of considerable argument. Dr. Murphy avoids it as a part of the after-treatment, because, as he says, to avoid the danger of infection. Moynihan of Leeds, England, irrigates twice daily for the same reason, so there you are. It is my practice to employ irrigation, and as yet have no occasion to regret it. A considerable quantity of shreds and clots escape with each irrigation for several days, and as one of the unpleasant sequelæ of prostatectomy is the formation of stone, it is desirable to avoid débris which might become a nucleus for such formation. I believe the daily introduction of the metal catheter to be conducive to the formation of a straight and patulous urethra, thereby avoiding to a considerable degree the danger of constriction from scar tissue. The daily irrigation adds greatly to the comfort of the patient, an expression of which you will hear each time it is done. It also avoids the very disagreeable urinary odor which soon contaminates the whole room.

Dressings should be changed every two hours, as long as urine escapes through the abdominal wound. As to the length of time these patients should be confined to bed, the very best rule to follow is to get them up in the shortest possible time, as has been mentioned before, old people do not bear well confinement in bed. The last operation done by me was one week ago Monday at the Oak Park Hospital. The patient sat up in bed the second day and was allowed to walk to the water closet on the third day, which he has done each day since. This patient's age is 67 years. These patients should be encouraged in every possible way, as the state of mentality plays an important part in the conduct of the kidneys. They should be urged to drink a reasonable quantity of distilled water at frequent intervals, and to change their position in bed frequently. In fact, every precau-



tion should be taken to prevent the slightest evidence of a condition of lethargy from developing which may mean the onset of urinary suppression and death. The procedure of having patients move about is of great value in several ways. First, it aids in preventing urinary suppression. Second, it makes drainage just as good and safer than through the perineum. Third, it adds to the patient's comfort, making the use of opiates almost never necessary. Fourth, it prevents the patient from becoming hospitalized, thereby hastening ultimate and complete recovery. The elective time for the operation is some time after the onset of persistent symptoms and before the bladder and kidneys have been seriously damaged by distension and infection.

Capacity for coitus is not, as a rule, interfered with, provided the suprapubic route is selected. Sterility is probably the rule on account of destruction of the ejaculatory duct. The bladder resumes its normal size and function in a very short period of time. One of my patients whose bladder capacity was under three ounces at time of operation was normal in size at the end of three months.

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### FULTON COUNTY.

The tenth annual meeting of the Fulton County Medical Society was held in the parlors of the Churchill House in Canton October 1 and was called to order by Vice-President Blackstone. The President appointed Drs. Scholes and Goodwin as auditing committee, and their subsequent report was accepted. The Secretary-treasurer's report was read and accepted. The following officers were elected: President, Dr. G. R. Blackstone, Table Grove; First Vice-president, Dr. A. C. Cluts, Ellisville; Second Vice-president, Dr. F. C. Robb, Farmington; Secretary-treasurer, Dr. D. S. Ray, Cuba; necrologist, Dr. P. H. Stoops, Ipava; Membership Committee, Dr. H. H. Rogers, Cuba; Board of Censors, Dr. Martha Richardson, Canton; delegate to state meeting, Dr. D. S. Ray, Cuba; member of Legislative Committee, Dr. W. E. Shallenberger, Canton. Drs. E. M. Price, of Astoria, D. D. Kirby, of Canton, and J. C. Simmons, of Norris, were elected to membership. Adjourned for dinner. 1:30 p. m.: Dr. C. U. Collins, of Peoria, presented a very interesting paper on The Abdominal Incision. The Secretary read a paper by Dr. Cluts on Operative Appendicitis. Dr. Scholes presented a paper on Neurasthenia, and Dr. Robb one on Duodenal Ulcer. Dr. Shallenberger presented the following resolution to be adopted at the next meeting as an amendment to the by-laws: "Resolved, That it is the sense of the Fulton County Medical Society that any member entering into contract work, either medical or surgical, for a less price than that prevailing in the community in which the contract is made shall be deemed not in good standing in the society." Those present were Dr. Coleman and wife, Dr. Goodwin and wife, Dr. Collins and wife, Dr. Barbour and wife, Drs. Rogers, Blackstone, Robb, S. A. Oren, S. L. Oren, Stoops, Ray, Scholes, W. D. Nelson, Sutton, Regan, Moorhouse, Kirby, B. Betts, Hayes, Shallenberger. Coleman and Oren moved vote of thanks to Dr. Collins. Carried unanimously.

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### MCLEAN COUNTY.

The regular monthly meeting of the McLean County Medical Society was held in the City Hall, Oct. 3, 1907, at 7:30 p. m.

Dr. F. H. Godfrey, in his inaugural address, called attention to the meddlers which the physician has to contend with, nearly every person having a remedy for nearly everything. He very aptly illustrated his meaning by referring to the incident of the Duke of Ferrara, who, on propounding the question, "In what calling are most men engaged?" received the answer from Gonelli, his court fool, "There are more physicians." Gonelli, disguising himself and feigning a toothache, proved his point by receiving more than 200 prescriptions, including a "sure cure" from the duke himself, between his lodging and the duke's palace. Dr. Godfrey referred to the degrading effect of contract practice, citing in point certain fraternal societies in which whole families receive medical treatment for 12

cents per week. Dr. Godfrey spoke of the proprietary medicine evil, stating that these medicines are too frequently prescribed by so-called doctors who are ignorant of what they contain, and in so prescribing act only as agents for the various concerns without a commission. There is necessity of more thorough and constant study, that we may know and comprehend our subject. He would have us adhere more closely to the Pharmacopeia.

Dr. Harold N. Moyer of Chicago addressed the society on the subject of "Medicolegal Defense," saying that four years ago the physicians of Chicago organized to protect themselves from this class of litigation, which is on the increase, and one year ago the organization became a part of the State Society. In this time over 400 cases have been defeated. A case has never been lost. In the event the committee concludes that the physician in question is guilty, it refuses to accept the case. Said committee reserves the right to say whether physician is guilty or not. Several cases showing the nature of the suits were cited. The purpose the State Society has in taking up this matter of defense of its members is to give them adequate protection from unjust suits for the mere cost of defending same. Dr. Moyer said the actual cost of this defense would not exceed \$2 per year; further, that on payment of \$5 by each member, in order to raise sufficient working capital, the State Society would guarantee to pay the cost in full of all cases for the next ten years at an additional expense of not to exceed \$1 per year per member. Suits can be divided as follows: Fifty per cent. are pure blackmail; 25 per cent. sue for malpractice to beat a just bill; 15 per cent. believe they have been aggrieved or injured; 10 per cent. are very close to malpractice; blackmailers are generally charity patients. The state pays attorney's fee, stenographer and costs. Dr. Moyer said physicians are loose in their methods of keeping books, frequently omitting dates and failing to make charges or record in their books of work done. Keep a record of *all* cases. The "day book" is the only legal book, and should be kept if none other. The speaker advises the doctor to be on his guard for trouble—to know his legal status. The physician is not legally under obligation to attend any case, but when treatment is once entered it is a contract and he is obliged to remain until legally released, using "reasonable and ordinary care and skill and due diligence" in the conduct of said case, "reasonable and ordinary care and skill and due diligence" being such as is required of the average physician in the same locality and under similar circumstances. The burden of proof in malpractice suits is with the plaintiff. He must show that the doctor did not use "ordinary skill and due diligence." It must further be proved that negligence and lack of skill resulted in damage to the plaintiff.

The society tendered a vote of thanks to Dr. Moyer for his able and instructive talk. The following members were present: Drs. Bath, Guthrie, Cantrell, Taylor, R. D. Fox, Fenelon, Chapin, Little, Covington, Brown, J. L. Yolton, R. G. Yolton, Hart, Carr, A. L. Fox, C. M. Noble, Vandervoort, Lee Smith, Godfrey, Sloan, Turner, Rogers, Dobson and Rhodes. Visitor, Dr. A. J. Morris.

F. H. GODFREY, President.

O. M. RHODES, Secretary.

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### MONROE COUNTY.

The Monroe County Medical Society met in Waterloo, Monday, September 23. The president, Dr. Heidelberg, and Drs. Kuehn, Schellschmidt, Kohlenbach, Vogel, Sennott, Pautler, Fuels, Adelsberger, were present. Dr. Sennott called attention to the prevalence of smallpox throughout the state and the necessity for physicians to encourage vaccination. An interesting case of abnormal development of mammary glands was related by Dr. Heidelberg, which elicited enumeration of similar cases by Drs. Sennott and Schellschmidt and a general discussion by the members. The society voted its moral support to the State's Attorney in prosecuting violators of the Medical Practice Act, as authorized by the State Board of Health; unlicensed midwives and other persons practicing medicine without a

license will in the future be prosecuted, the society being determined that the medical laws shall be enforced.

The following resolution was passed by an unanimous vote:

*Resolved*, That the members of the Monroe County Medical Society will not in the future make an examination for old line life insurance companies for less than five dollars; provided, that this resolution shall not apply to written contracts now in force, nor to examinations for fraternal, religious or industrial societies.

Since the exposures of graft made in investigations of life insurance companies in which the medical departments and examiners came forth unsullied, the companies have, in order to reduce expenses, reduced the fee for the medical examiner, who is the foundation of the stability of the company. Nearly every society in the country has passed a resolution similar to the above. The full attendance at recent meetings, the interest taken in the discussions of matters relative to medicine, surgery and midwifery and friendly feeling maintained between the members, led the society to vote for a special meeting to be held at Burksville, December 9, at which Drs. Miller, Kuehn, Schellschmidt and Fults will read papers.

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### MORGAN COUNTY.

The Morgan County Medical Society held its regular meeting at the Library Sept. 12, 1907, at 8 p. m., President Dr. E. L. Crouch in the chair. Twelve members were present. The application of Dr. Bradley for membership was laid over until the next meeting.

Dr. Hardesty reported a case of tuberculosis.

Dr. Milligan reported two cases of fibroid of the uterus during pregnancy. In the first case the diagnosis was made two years before labor. The placenta was adherent at site of tumor. In the second case there was a normal labor, which was followed by a violent postpartum hemorrhage. The tumor was situated anterior and at the top of the fundus.

Dr. Woltman was called to see a man who was thought to have cholera morbus, had been vomiting every fifteen or twenty minutes for three days, the vomiting having the smell of urine, the patient was stupid, had normal temperature, had not urinated for three days, went into coma and died a short time after having been seen.

Dr. Adams reported a case of Ménière's disease, also two cases of fungus in ears, which responded nicely to the alcohol treatment.

Dr. Duncan reported a case of typhoid fever in a merchant. He was very nervous, had excruciating headaches, which radiated from one side to the other, a sub-normal temperature, tenderness over bowels, spleen enlarged, which symptoms continued for fourteen days, being followed by delirium for a few days, then with a general improvement; headaches still present, but in a milder form.

Dr. Pitner reported a case of pleurisy with effusion in a patient 40 years of age, following an acute illness eight weeks prior; there was dulness over right apex, edema of legs, normal temperature and egophony; aspiration was performed and fluid was so thick that it took an hour or so to withdraw a pint; a trocar was tried next with much better results, four and one-half pints being obtained, which was followed by general improvement and with no signs of a reaccumulation.

Dr. Bowe reported a case of myoclonus epilepsy in a child 5 years of age, due to congenital syphilis; it had 112 convulsions in twenty-four hours.

Dr. King reported a case of goiter in a man 40 years of age which grew to the size of a hen's egg within two or three days' time and lasted for a week, then disappeared without any treatment; the skin surface of the enlargement would become inflamed until it resembled that of a large boil, temperature and pulse normal, no pain present, and the only thing complained of by the patient was the inconvenience due him from the external enlargement; the patient stated that this swelling had occurred six times within a year and at no time were the symptoms any different.

Dr. Crouch mentioned a case of goiter with three nodules; patient very nervous; goiter was at first simple, but assumed an exophthalmic type with all symptoms pronounced; hair came out, pulse 160 and feeble, was put on strophanthus, and a general improvement followed, pulse came down, tremors decreased, and patient took more nourishment.

Society adjourned.

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#### RANDOLPH COUNTY.

The Randolph County Medical Society convened in regular quarterly session, October 8, in Coulterville. The program as carried out at this meeting proved to be exceptionally interesting and instructive. Dr. Gault's case of talipes equinus varus, upon which he performed a successful operation, again proves the fact that these operations are usually delayed too long. Dr. Robertson's paper on Malaria interested the Society very much and brought out a discussion in which the ten physicians present participated. Dr. Adderly, the president of the Society, explained the medico-legal defense which the State Society provides. The physician who is in good standing with his County Society receives as much protection in this manner for \$1.00 as he can get for \$15.00 from the so-called "Physicians' Defense Companies."

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#### VERMILION COUNTY.

The Vermilion County Medical Society was called to order at 7:45 p. m. in the City Hall, Danville, by the president, A. J. Leitzbach. This being a joint meeting with the Champaign County Medical Society, Dr. J. C. Dodds, president, was asked to occupy the chair. Previous to opening the session the visiting gentlemen, seventeen in number, were entertained at dinner at the Plaza Hotel. The following papers were read: "Indications for Producing Abortions or Premature Labor," Dr. W. K. Newcomb, Champaign, Ill.; "Puerpural Eclampsia," Dr. F. M. Mason, Rossville, Ill.; "Puerpural Septicemia," Dr. Joseph Brayshaw, Homer, Ill. This program was one of the very best the society has ever had. The absence of Dr. Fithian was a disappointment, as his paper seemed to be a very important one. The discussion was opened by Dr. McKinney and T. C. McCaughey, followed by Drs. Mason, Gray, Powers, Hoffman and Huff, Guy, Leroy Jones, Cooley and Robert McCaughey. The discussion was then closed by the essayists.

E. E. CLARK, Secretary.

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#### WILL COUNTY.

The September meeting was held September 24. A paper was read by Dr. R. L. Eldredge of Frankfort on Diabetes in Children, the case in point illustrating the importance of urinary examinations in diseases of children. As the experience of the members present in such cases had been limited, the discussion turned to diabetes in adults. The president, Dr. M. W. Cushing, is such an excellent quiz master that he easily obtained an expression of opinion from every member. Dr. H. W. Woodruff's paper on The Symptoms of Glaucoma was read by his associate, Dr. W. O. McBride, and proved to be the source of an interesting general discussion.

Dr. R. B. Leach was elected as the Will county member of the medicolegal committee. Members present: Drs. Cushing, Lennon, LeSage, F. W. Ruben, McBride, Leach, Dougall, Nash, Werner, Eldredge, Bowles, McGann, Patterson, Brannon, Richardson, Eidam.



## NEWS OF THE STATE.

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### PERSONAL.

Dr. Harry H. Rittenhouse is reported to be critically ill.

Dr. George Paul Marquis returned from Europe September 8.

Dr. David J. Doherty, Manila, P. I., is in Chicago for a brief visit.

Dr. and Mrs. Eugene S. Talbot returned from Europe September 21.

Dr. Arthur Snyderacker, of Chicago, sailed for Europe September 19.

Dr. Dan Goodman, of Springfield, has gone to Vienna for a period of study.

Dr. John C. Sonders has been elected physician of the poor for Rock Island.

Dr. L. Harrison Mettler and family have returned from Mackinac Island.

Dr. and Mrs. Glenn M. Hammon have returned after three months in Alaska.

Dr. William F. Matson and family, Monticello, sailed for Europe October 10.

Dr. Hugh F. Gunn, Galena, has been appointed physician of Jo Daviess County.

Dr. Harry M. Hayes has been chosen as a member of the staff of St. Francis Hospital, Peoria.

Dr. Harry C. Blankmeyer, Springfield, bacteriologist for the State Board of Health, has resigned.

Dr. W. S. Layman, of Chicago, has returned to Chicago after three years at Kamerun, West Africa.

Dr. George A. Sihler, Litchfield, has been appointed division surgeon for the Illinois Traction System.

Dr. John Randolph Webster, Monmouth, who has been seriously ill in Chicago, has returned home convalescent.

Dr. John E. Haughey, Rockford, has succeeded Dr. Charles E. Crawford as physician of Winnebago County.

Dr. William M. Young, assistant physician at the Illinois Institution for the Feeble-minded, Lincoln, has resigned.

Dr. Albert R. Trapp, of Springfield, is laid up at his father's residence in Lincoln suffering from blood poison.

Dr. Alfred N. Murray has removed his office to Suite 1208 Chicago Savings Bank Building, 72 Madison street, Chicago.

Dr. Howard T. Ricketts, of Chicago, has returned after a summer spent in investigating the tick fever problem in Montana.

Dr. W. J. Chenowith, Sr., at the age of 84, has retired from a practice of nearly 60 years in Decatur and removed to Detroit, Mich.

Dr. Carl C. Muehlmann, Pekin, while returning from a professional call October 3, was thrown from his buggy, breaking his left arm.

Dr. Cyrus H. Anderson, McLeansboro, has been appointed superintendent of the Hospital for Insane Criminals, Chester, vice Dr. Walter E. Songer, deceased.

Dr. Harry B. Earl, resident physician at the Maplewood Sanitarium, Jacksonville, has received an appointment on the staff of the Iowa State Hospital for the Insane, Cherokee.

Dr. and Mrs. Z. H. Going, of Chicago, announce the engagement of their daughter, Harriett Radcliffe, to Dr. Emil Bernard Anderson, of Englewood. The wedding will take place early in November.

Dr. and Mrs. Arthur B. Wakefield, who have been in Nankin, China, for the past two years engaged as missionaries, return in November to Springfield, where Dr. Wakefield expects to re-enter practice.

Dr. John J. Stiles, the dean of the medical profession of Pontiac, was given a surprise call by the members of the profession of the city in honor of his eightieth birthday anniversary and was presented with a gold-headed silk umbrella and other gifts.

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#### NEWS ITEMS.

An epidemic of typhoid fever is reported at Canton.

Three cases of smallpox of mild type have appeared in Rockford.

As a result of drinking impure water while camping at McHenry, five citizens of Elgin are ill with typhoid.

Dr. Mac Jones, formerly county physician of Sangamon County, was recently arrested in Springfield for the illegal sale of cocain.

The State Homeopathic Medical Society has opened a sanitarium for the treatment of tuberculosis and nervous disease at Buffalo Rock.

The first case of smallpox since July 21 in Chicago occurred September 20, the patient coming from Montana and never having been vaccinated.

"Dr." J. Kubus, Chicago, is reported as fined, September 30, \$200 for practicing without a license. Prosecution was made by the assistant attorney for the State Board of Health.

Judge Scovel, of the Municipal Court, on October 8, is said to have found Gordon Francis, known as "Dr. D. Dunn," guilty of practicing medicine without a state license and fined him \$200 and cost.

Dr. Richard C. Cabot, of Boston, addressed the Sangamon County Medical Society at the Lincoln Library on the evening of October 10, his subject being "Essentials and Non-essentials of Physical Diagnosis."

At the coroner's inquest on Charles Swicks, city marshal of Rose Hill, who was shot and killed by Dr. John W. Hutton September 18, the physician was exonerated, the case being declared one of justifiable homicide.

The case against Dr. Walter B. Metcalf, charged with performing a criminal operation on Miss Nellie Kilton, was dismissed by Municipal Judge Sadler, September 20, on the ground that the complaining witness had testified falsely.

An individual calling himself "Dr. Bosworth," who, it is alleged, has been selling a mixture composed chiefly of table salt, iron and sulphur, was fined \$100 and costs in Chicago, on September 25, on the charge of practicing medicine without a state license.

Warden Happel, of Cook County Hospital, in his last report, states that the hospital population has increased 50 per cent. in the last four years, and that the number admitted during September was 30 per cent. more than was admitted in September, 1904.

The College of Physicians and Surgeons (Medical Department of the University of Illinois) was opened October 1 for the session of 1907-8. The opening address was delivered by Prof. L. Harrison Mettler, the theme being "Art and Science as Applied in the Practice of Medicine."

The average per capita cost of inmates of the state institutions for the quarter ending June 30 was \$42.68. The highest per capita was at the St. Charles Boys' School, which amounted to \$73.45; the lowest was at the State Hospital for the Incurable Insane, Bartonville, with a per capita of \$25.00.

Dr. Haims L. Davis, in charge of the detention hospital, as a result of investigation of eastern hospitals during a recent trip, advises that a hospital be established for victims of alcoholism, as the County Hospital maintains no alcoholic wards, and as the detention hospital facilities in this direction are limited.

At the annual meeting, September 22, of the Chicago Physicians' and Surgeons' Golf Association, founded six years ago by the late Dr. Fernand Henrotin, Dr. Thomas J. Watkins was elected president, Dr. George W. Webster, secretary, and Drs. John Ridlon, Wm. Allen Pusey and Frank W. Lynch, executive committee.

By the will of Henry L. Barney, who recently died, the following bequests were made to Chicago institutions: Visiting Nurses' Association, \$20,000; Chicago Lying-in Hospital, \$10,000; Hospital for Destitute and Crippled Children, \$5,000; Chicago Home for Incurables, \$5,000; Chicago Daily News Fresh Air Fund, \$10,000, and Chicago Tuberculosis Institute, \$10,000.

Work on the University Hospital at Lincoln and Congress streets was begun October 4. The hospital will be used exclusively by teachers and students of the Department of Medicine of the University of Illinois. There will be accommodation for 80 patients, private rooms and wards. The building will be a four-story structure of 134 by 150 feet and is to cost about \$120,000.

The Henrotin Memorial Hospital will, it is announced, be opened November 1. It is a six-story building of reinforced concrete, with 60 rooms for patients, and is the result of long planning on the part of the late Dr. Fernand Henrotin, who, until his death last December, was

president of the Polyclinic Hospital Association. Dr. John Chew, president of the association, states that the prices will be similar to those of other hospitals, and the institution will be open to patients of all reputable physicians.

The following are the names of the applicants who passed the recent examination for positions on the staff of the Illinois Charitable Eye and Ear Infirmary: Eye surgeons, Frank A. Phillips, Brown Pusey, Willis O. Nance, E. V. L. Brown and William E. Gamble, all of Chicago; assistant eye surgeons, Robert Von der Heydt, Oak Park; Charles C. Clements, Major H. Worthington and Lewis K. Beck, of Chicago; ear surgeon, G. W. Boot, of Evanston; assistant ear surgeons, B. Franklin Hodson and Lorenzo N. Grosvenor, of Chicago.

The Marquise de Fontenoy announces in a recent issue of the *Chicago Tribune* an important action of the German Emperor regarding patent medicines. Her statement is as follows:

"Emperor William has come out in the most flatfooted fashion against patent medicines, which he seems bent upon abolishing altogether as far as Germany is concerned. Four years ago, on his personal initiative, a law was devised and enacted compelling the manufacturers of patent medicines to state on each package what ingredients the medicine contained and in what quantities. Not content with this, he has now affixed his sign manual to a new statute, for the initiation and drafting of which he is almost entirely responsible, which prohibits the public advertisements of patent medicines and forbids the use of any printed or written statement in praise of the article or compound, as well as of any testimonial or recommendation or anything in the nature of an advertisement or an inducement to buy. Chemists and all retailers are required to know the ingredients of patent medicines, except where they sell them on a doctor's order and prescription. Failing this, they are not only liable to punishment by the law if they sell patent medicines, but are also responsible in civil damages for any injury that may be caused by the remedy. Inasmuch as the new law imposes severe penalties in the shape of withdrawal of licenses, confiscation, fine and imprisonment upon offenders, it looks much as if the patent medicine industry and trade is at an end as far as Germany is concerned, while the Teuton press loses a large source of revenue derived from advertisements of the nostrums in question."

The Illinois State Conference of Charities held its twelfth annual meeting in Jacksonville October 9 to 11, inclusive. The meeting was well attended and much interest shown in the work of this organization. The representation of the medical profession in the program of this conference demonstrated the very close relation existing between all charitable organizations and medical charity. Such conferences are the best means of arousing a sentiment among the people. Investigation of medical charity by influential and leading laymen is all that is necessary to show the great need of the most liberal and hearty cooperation of all charitable organizations with the medical profession in order to accomplish the greatest good for the health and welfare of the nation.



A glance at the subjects and speakers will illustrate the great interest manifested at this meeting. Address, Education of Physicians and the Public Regarding Insanity, Dr. Frank P. Norbury, of Jacksonville, President of the Conference; Social Aspect of Medical Work, Dr. Richard C. Cabot, of Boston, Mass.; Work for Deficient Children in Illinois, Dr. W. H. C. Smith, of Godfrey; Methods of Training Children in Institutions, Dr. C. W. Hart, Superintendent of St. Charles School for Boys; Business Administration of Public Institutions, Col. Frank D. Whipp, of Springfield, State Department and Institution Auditor; Food Supply of Joliet Prison, William Wickersham, Steward at Joliet; Care of the Poor in Small Communities, Mrs. James A. Parson, of Jacksonville; Public Care for the Poor—The Model Almshouse, S. T. Metcalf, Superintendent of Sangamon County Almshouse, Buffalo, Ill; The Wards of the State, his Excellency the Honorable Charles S. Deneen, Governor of Illinois; The Model Penitentiary, Henry Wolfer, Warden of Minnesota State Prison, Stillwater, Minn.; Needs of the Jails and Lock-ups, Dr. F. Emory Lyons, Superintendent of Central Howard Association, Chicago; Adult Probation, Judge McKenzie Cleland, of Chicago; Social Hygiene, Charles R. Henderson, Professor of Sociology, University of Chicago; Continuous Care of the Feeble-minded, Dr. H. C. Hardt, Superintendent of Asylum for Feeble-minded Children, Lincoln, Ill.

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#### INCORPORATIONS.

Grace Hospital, Chicago; capital, \$7,500; to maintain a hospital and school for nurses; incorporators, A. M. Harvey, C. C. O'Byrne and J. S. Nagel.

Herbacene Remedy Company, Chicago; capital, \$2,500; manufacturing and dealing in drugs and medicines; incorporators, Aaron R. Wolff, Harry R. Wolff and E. R. Parnell.

National Guarantee Medical and Surgical Aid Association, Monmouth; capital, \$500; to furnish medical and surgical aid; incorporators, George W. Skiles, J. R. Ebersole and F. L. McCormick.

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#### MEDICAL SOCIETY NOTES.

Dr. Henry B. Favill, president of the Chicago Medical Society, addressed the North Shore Branch at its first meeting, held October 7, on "The Relation Which the Chicago Medical Society Bears to the Branch Societies." His remarks showed the administration's desire to effect a complete solidarity of the main society and branches to the effect that the best results may be obtained in the promotion of medical science and public health.

The Council of the Chicago Medical Society held its first meeting for the fall Tuesday, October 8. The meeting was well attended and considerable business transacted. This was the occasion of the annual meeting of the Council when all appointive and standing committees made reports and the work for the year outlined, together with the election of

members of standing committees, delegates to the State Society and appointing of committees for the year.

Dr. J. P. Houston, president of the North Shore Branch of the Chicago Medical Society, outlined the work of the branch for the coming year and urged upon the members the necessity of good feeling toward each other, which can best be accomplished by free scientific and social intercourse found at the meetings of the Society. Dr. Houston said, in part: "The work of the branch society for the year may be divided into two classes: First, work of purely scientific nature; second, work along the lines of social science. In years past we have had good work of first class, and the executive committee will agree to make this year's work reach the same level; will have programs of general interest and try to make the meeting a place which will attract all the profession of the district; will have papers by specialists, by men in general practice, and do our utmost to make the meetings interesting. Maintain a working formality, but never allow the dignity of the meeting to become so ponderous as to preclude the most modest man among us giving his contribution as if among his friends. The work of the second class will consist in giving more time to social intercourse, after programs, getting better acquainted with each other and cultivating a spirit of genuine friendliness among our members. We shall do our share of medical missionary work. We shall do our share along the varied lines of medical legal work, putting our shoulders to the wheel of progress and help in the solution of problems which present themselves to our city and state."

Dr. Arthur M. Corwin, president of the West Side Branch of the Chicago Medical Society, has issued the following plea for the hearty cooperation of members of the branch in furthering the interest and welfare of the local society during the year:

*"To West Side Physicians:*

"As President of the West Side Branch of the Chicago Medical Society I ask your cooperation in the work of the year. The aim of that work is to benefit primarily each individual of the profession in our district in every way within our power. To this end the officers shall hope to meet your approval. First, they will seek to provide interesting scientific programs, both clinical and otherwise. They will welcome short papers and reports of value. They will desire intelligent, practical and brief discussion from all attending members. They will see that the program reaches you a week or more in advance of the meeting, so that you may prepare to discuss a question clearly and to the point. You are requested to get your clinical reports, papers or presentation of specimens in hand and keep in touch with the Secretary. These are your meetings and you are entitled to a place on their program. The purpose shall be to keep the meetings of high grades and worth reporting. There is a wonderful success in numbers. Do your part at least by reserving the third Thursday evening of each month for this Society and talk to your confrères about it. The meetings will always be opened at 8:15 sharp, in order to close at a reasonable time. Second, all physicians on the West Side should know each other well. The Social Committee has your profit

and pleasure especially at heart. Watch for its announcements and meet its suggestions half way. Third, there are many questions involving our relation to the Council and other medical bodies, as well as our relations to the public. These are your problems—come and help solve them right.

Sincerely yours,

(Signed) "A. M. CORWIN."

### HEALTH BOARDS AND PUBLIC HEALTH.

The Peoria Health Commissioner has requested the police to arrest any one distributing pills or other samples of medicine.

A civil service examination was recently held in Chicago for school medical inspectors, and of 412 applicants examined only 58 made a passing grade.

The Public Health and Marine Service is seeking information in regard to any epidemics traced to a milk supply, as the subject is receiving careful scrutiny and revision.

Acting on the recommendation of Governor Post, the executive council has decided to institute compulsory vaccination in Porto Rico. No deaths have occurred from smallpox on the island since 1898, when the entire population was vaccinated by order of the United States authorities.

During September 296 cases were reported to the coroner's office, Cook County, 71 fewer than for August and 12 fewer than for the corresponding months of 1906. Of the deaths reported, 29 were from suicide, 15 from homicide, 22 were due to railway accidents, and 23 to street-car accidents.

A new law which is now in effect in Massachusetts requires that in every factory or shop in which machinery is used for any manufacturing purpose there shall be kept, free of expense to the employes, such a medical and surgical chest as shall be required by the local board of health of any city or town where such machinery is used.

The Chicago Department of Health has issued warning regarding typhoid fever, the probability of an increase in scarlet fever on the opening of schools, and the necessity of vaccination, in view of the smallpox experience of recent years. A great amount of work is being done in this laboratory, and physicians should familiarize themselves with the facilities of this department to assist them in many matters affecting the public health.

During the first twenty school days, 17,820 children were examined by the medical inspectors and 1,476, or 8.3 per cent., were excluded from attendance at school on account of the existence of the following diseases: Tonsillitis, 315; pediculosis, 278; impetigo contagiosa, 188; scarlet fever, 120; scabies, 99; diphtheria, 84; whooping cough, 66; purulent sore eyes, 45; measles, 42; mumps, 40; chickenpox, 32, and tuberculosis, 3. Of the 456 exclusions during the week, 105 were afflicted with tonsillitis, and microscopic examination of cultures from 66 of these showed 7 of them to be diphtheria.

Dr. W. A. Evans, Commissioner of Health in Chicago, has recently issued the following statement in *The Bulletin* of the Chicago Medical Society in reference to gonorrheal vulvovaginitis in girls:

"During the past summer a delegation of hospital superintendents met to consider the causation of vulvovaginitis in children. Their interest was chiefly in the disease in hospitals, and they recommended a plan of procedure for hospitals. A further suggestion was that the profession be informed of the prevalence of this form of gonococcus infection in Chicago. It was their opinion that the family and the family physician are neglecting these infections. While gonococcus infections before puberty are of less importance than in adults, the results are always disagreeable and sometimes serious. Whenever children are living together in numbers an epidemic threatens. Most of the vulvar discharges in young girls are due to gonococcus. Beginning as an infection of the vulvar glands, it spreads to the vaginal folds. The duration is long. At times infection is spread to other organs. If the child goes into an institution the disease will spread to other inmates unless precautions are taken. This morning the writer was told of the following circumstance: A physician has one child, a girl of 3 years. A male relation of his wife came to visit him. He had gonorrhea, used the bathroom, and as a consequence the child contracted the disease. The committee asks the physicians of Chicago to carefully investigate and properly care for vulvovaginitis in girls.

W. A. EVANS."

#### INQUIRY ABOUT NEW ANTITOXIN LAW.

*Mr. Editor:*—The fact that the Illinois State Board of Health is about to furnish diphtheria antitoxin free of charge to all applicants, both rich and poor, makes it the duty of physicians to use it. It would be manifestly unjust to cause patrons to buy what they can secure for nothing. I am, therefore, justified in asking for information as to the reliability of the company which is to supply this serum. That they can supply antitoxin to the Board cheaper than firms whose products I have learned to depend on does not recommend it to me, nor does the endorsement of the State Board give it a strong position in my estimation.

Several years ago I narrowly escaped using the infected antitoxin of the St. Louis Board of Health, because I could get it so much cheaper than elsewhere. So now, without intending to cast any reflections, I am asking who has used this antitoxin and what assurance can be had that it is as good and safe as the brands in common use in the State of Illinois?

Yours,

S. I.

#### MARRIAGES.

CHESTER EARLE, M.D., to Miss Lenora Debeir, both of Chicago, September 28.

CHARLES W. HEYWOOD, M.D., to Miss Louise Soper, both of Riverside, Ill., October 7.

FRANK C. GREEN, M.D., Chicago, to Mrs. Mattie May Smith in Oswego, N. Y., in July.

CLAUDE J. SAUNDERS, M.D., Ashley, Ill., to Miss Elsie E. Miller, of Irvington, Ill., Sept. 11, 1907.

ALLEN B. KANAVAL, M.D., Chicago, to Miss Olive Rosencranz, of Evansville, Ind., Oct. 8, 1907.

JOHN WALTER HUSTON, M.D., Virginia, Ill., to Miss Estelle Wood, of Caro, Mich., September 18.



JOHN DONNINGTON BARLETT, M.D., Chicago, to Miss Edith Booker, of Helena, Mont.; September 4.

JOHN WALTER FULWILER, M.D., to Miss Alice McClum Martin, both of Bloomington, Ill., September 21.

THOMAS H. KELLEY, M.D., Chicago, to Miss Sarah Byrde Buchan, of Stevens Point, Wis., September 26.

ROBERT NELSON LANE, M.D., Danville, Ill., to Miss Mabel Lee Hanna, of Bardolph, Ill., October 16.

CHARLES PATTON CLARK, M.D., Chicago, to Miss Bessie Burnette, of Oconto, Wis., at Chicago September 18.

CARL J. F. ROCHOW, M.D., Lincoln, Ill., to Miss Margit Jansen, of Frederikshald, Norway, at Chicago, September 28.

R. RALPH FERGUSON, M.D., Irving Park, Chicago, to Miss Goldie Abigail Edgerton, of Hastings, Neb., September 17.

J. LESTER BARNSBACK, M.D., Chicago, to Mrs. Virginia Camp-Bishop, of Columbus, Ga., at Terre Haute, Ind., September 28.

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#### DEATHS.

STILWELL G. MERRILL, M.D., Homeopathic Medical College of Missouri, St. Louis, 1867, died at his home in Collinsville, Ill., September 8.

HENRY HORACE HEGERTY, M.D., Chicago Homeopathic Medical College, 1901, died at his home in Dundee, Ill., September 15, from uremia, after an illness of two weeks, aged 45.

RUSSELL THOMAS BARRY, M.D., Rush Medical School, Chicago, 1902, died at the home of his parents in Chicago, September 12, from tumor of the brain, after a brief illness, aged 26.

MORTIMER WILLIAM HANDLEY, M.D. (examination, Illinois, 1899), died at his home in Chicago, July 24, from splenomyelogenous leukemia, after an illness of three years and a half, aged 35.

ALBERT LEWIS MAHAFFEY, M.D. (examination, New Mexico), for several years physician at Indian School, Albuquerque, N. M., died at a hospital in Chicago, September 1, from cancer, aged 60.

ALEXANDER STUART McLENNAN, M.D., faculty of medicine of Queens' University and Royal College of Physicians and Surgeons, Kingston, Ont., 1873; a resident of Chicago for fifty years, died at his home September 23, after a short illness, aged 72.

RICHARD S. SLEVIN, M.D., Rush Medical College, Chicago, 1902, formerly a practitioner of Peoria, Ill., threw himself from a window in the fifth floor of the City Hospital, St. Louis, October 4, while mentally unbalanced from drug addiction, and was instantly killed, aged 30.

JOHN SIDNEY DYER, M.D., Northwestern University Medical School, Chicago, 1905, after his graduation an interne in St. Luke's Hospital, Chicago, and later a practitioner in Boone, Iowa, died in St. Anthony's Hospital, Denver, Colo., August 31, from cirrhosis of the liver, after an illness of several weeks, aged 25.

SAMUEL G. IRWIN, M.D., Rush Medical College, Chicago, 1863, one of the oldest practitioners of Crawfordsville, Ind., died at the home of

his son in Champaign, Ill., September 29, from senile debility aggravated by a fracture of the hip received six years before, aged 82. The members of the Montgomery County Medical Society attended the funeral in a body.

GEORGE CALLOWAY, M.D., died in Tuscola, October, 1907, aged 63 years, an alumnus of Rush Medical College, but a graduate of the Ohio Medical College of 1873. The Doctor had not been in active practice of



COLUMBUS BARLOW, M.D., of Robinson, Councilor of the Illinois State Medical Society, recently deceased. The obituary notice will appear in the December number of THE JOURNAL.

his profession for more than twenty years, devoting his time mainly to farming until failing health compelled him to retire from all kinds of business. Death resulted from disseminated sclerosis.

ALBERT S. SLATER (years of practice, Illinois, 1877), of Wataga, Ill., a member of the Illinois State and Knox County medical societies, hospital steward and assistant surgeon in the army during the Civil War, for ten years coroner of Knox County, for twelve years an alderman and for four years mayor of Wataga, died, September 11, at the home of his niece in Anderson, Ind., from kidney disease of long standing, aged 67.

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## ORIGINAL ARTICLES

### HYSTERIA AND NEURASTHENIA: THEIR NATURE AND TREATMENT CONTRASTED.\*

L. HARRISON METTLER, A.M., M.D.

CHICAGO.

Hysteria and neurasthenia are separate and distinct clinical entities. There are a few symptoms, chiefly mental, that are common to both, and the two affections may appear simultaneously or consecutively in the same individual. When each malady is studied in its entirety and when a clear comprehension of the essential physiopathology of each as we understand it to-day obtains, there is no more liability to confound or identify one with the other than there is to confound or identify typhoid fever with pneumonia. Failure to appreciate the radical difference between hysteria and neurasthenia is the cause of most of the annoying and unsatisfactory results from their management. A man who claims that he can do his rheumatic and diabetic cases good, but can not accomplish anything with his hysteric and neurasthenic patients, because, forsooth, the latter belong to that alleged hopeless class, the victims of nervous disease, simply exposes his own shortcomings, either of knowledge or skill, since the latter are really no more intractable, merely as diseases, than are the former.

Diagnosis always takes precedence of treatment, both in time and in importance, popular belief to the contrary notwithstanding. It is the bad and indifferent diagnoses that lead to the irrelevant and disastrous modes of therapy. *Qui bene diagnoscit, bene curat.* Rational treatment is founded only upon a comprehension of the nature of the disease, not upon a knowledge of its symptoms. The latter, like sign posts, merely point out the road in our search for the disease process. The neurological knowledge of to-day has advanced sufficiently far to logically hypothesize a definite and fairly satisfactory conception of the underlying physiopathology of hysteria and of neurasthenia. With this conception we can account for the clear and marked differentiation between the two

\* Presented at the Fifty-seventh Annual Session of the Illinois State Medical Society, held at Rockford, May 21-23, 1907.

sets of symptoms. It is my desire to outline a sharp and warrantable contrast between hysteria and neurasthenia, not only for the sake of differential diagnosis, but for the very practical purpose of indicating the modern conception of the essential nature of each, whereby both a correct diagnosis and a rational line of treatment may be adopted.

At the outset let me say that my remarks are to be based upon the study of genuine cases of hysteria and neurasthenia. Like charity, these terms have been made to cover a multitude of sins, both of omission and of commission. The tendency among some practitioners to label everything neurasthenia that can not otherwise be nosologically classified is most reprehensible and bespeaks either ignorance or laziness. Better far is it always for physician and patient alike, to say nothing of the great cause of honest scientific medicine, to frankly confess one's inability to make a diagnosis in a given case than to attach a definite name to an unknown condition.

In like manner it is a most unfortunate mistake to call those hysterical and neurasthenic who are only wilful, wanton and untrained. My remarks will find no applicability to those pseudohysterics and pseudoneurasthenics who, being not really diseased, exhibit none of the true symptomatic picture of the genuine diseases. If a lazy Indian or a whirling Dervish were to appear upon one of our streets he might metaphorically be spoken of as an instance of pseudoneurasthenia or pseudohysteria. Actually, however, he would no more represent true neurasthenia or true hysteria than do some of the queer, ill educated, badly disciplined, mentally and physically idle folk that at times haunt the doctors' offices. Such people, not knowing what they want, incapable of getting the best out of life, restless from sheer mental and physical ennui, vacant of thought and purpose, self-indulgent, whining, fretful and pretty much of a nuisance to themselves and everybody about them, are not necessarily diseased. Their greatest need is proper training and self-discipline. They need a schoolmaster rather than a physician. Deficiency of training is not a sign of disease any more than is inability to swim or to perform on a violin. To regard and treat these people as victims of such positive and distinct maladies as are hysteria and neurasthenia is a travesty upon medicine, a torment to the medical attendant, and an insult to modern scientific knowledge. It looks much like quackery or cheap commercialism.

Hysteria has been variously defined by the authorities, but in one respect their definitions all agree, namely, that it is primarily a psychic trouble, a form of mental alienation. Mœbius came close to the mark when he declared hysteria to be a state in which ideas control the body and produce morbid changes in its functions. Janet speaks of it as a condition in which the field of consciousness is contracted. Others have comprehended it under the term disintegration of the personality. While still others have affirmed that it represents a disturbance of the perceptive and appreciative faculties, a break, as it were, in the chain whereby pure physical and physiological stimuli connect, associate and correlate themselves with the mental processes; in other words, that there is a cer-



tain amount of discord in those mechanisms which normally harmonize mental with physical acts, these mechanisms being located in the cortex of the brain and being made up of cortical centers and association tracts. From all of this hysteria is, therefore, seen to be a disease of the ego, the personality; which ego or personality is the ultimate product of the total activity of the organism, influenced by innumerable hereditary and environmental factors.

In this conception of hysteria two things stand forth with marked emphasis, namely, that as a disease it represents immediately to the observer a functional disturbance and a psychosis. It is, therefore, often referred to as the great psychoneurosis. Elsewhere I have elaborated somewhat upon the nature of a psychosis, as we understand it in the light of modern psychology, and will not occupy the time repeating myself here. For the purposes of this paper, however, I may be permitted to say that in a coarse, metaphorical way a psychosis is to be likened in its relation to the fundamental physiological functions of the body to the waves of the ocean in their relation to the water. The former in both instances are dependent upon the latter and represent merely certain phases of activity. Just as the waves in themselves are something different from the water and result more or less from the totality of action in and among its molecular constituents, so the mind is something different from the brain and represents more or less the totality of action among its cellular elements. Indeed, continuing the metaphor further, it may be said that just as the waves depend upon the interplay of wind and water, environment and structure, so the mind or personality depends upon the interplay of numerous inherent hereditary, physiological factors and extra corporeal environmental influences. What are more variable than the waves of the ocean? What is more stable than the composition of the water? In like manner is a psychosis a most variable phenomenon, while the histophysiological structure of the organism remains relatively the same. Conscious and unconscious psychic activity is kaleidoscopic in its changes, seeming almost like the wind that bloweth where it listeth. This I desire to lay special stress upon here.

Now hysteria, being primarily a psychosis depending upon a vicious interplay between certain neural functions, which abnormal interplay is brought about by innumerable hereditary and environmental abnormalities, the first great characteristic of it from the clinical point of view is its changeability. Indeed, in my lectures, I have even gone so far in emphasizing this trait of the disease as to declare that changeability is the symptom of hysteria, all its other manifestations being invariably characterized by this trait. As the mind ultimately results from the total activity of the organism, so hysteria reveals in its symptomatology all forms of organic activity. The only way that one can positively distinguish the hysterical from the organic when the same type of symptom is in question is by the psychic instability of the former. Not even the distribution, onset, and disappearance of the symptoms, psychic though these be, and therefore highly suggestive of hysteria, are so distinctive as is the psychic changeability and instability. Therefore, it is not the symp-

toms *per se*, not even their grouping, that constitute the signs, par excellence, of this great psychoneurosis. It is their psychic interpretation that in the last analysis fixes the diagnosis of hysteria. As a corollary to this it follows that the more highly trained in psychology a physician is, the better chance does he stand of correctly diagnosing the disease. But, alas! psychology and its fundamental axioms are almost totally ignored by the average medical school; a fact which, in my opinion, fully accounts for the widespread dissatisfaction and great blundering sometimes seen in both the diagnosis and treatment of this protean malady. For example, in a recently issued widely heralded text-book upon neurology, written by one high in authority, the whole subject of hysteria is most unscientifically, anciently, and primitively presented because the author, as is highly evident from the context, is totally unacquainted with psychology, especially modern physiological psychology. After recommending various things for what he terms a psychosis, it is not surprising that he should confess small interest in the psychoneuroses. Current literature abounds in such curiosities, for, to use the words of Donley, "there is a regrettable division both of labor and of point of view which has hitherto separated psychologists and physicians, and which may be credited with a twofold result, that psychologists are rarely physicians and physicians not often psychologists."

In neurasthenia we meet with quite a different state of affairs from what we meet with in hysteria. Whether the type be of the congenital or the acquired form, the cardinal trouble is plainly enough physiological inadequacy. The ground of this deficiency may be molecular or chemical, cellular or organic, mental or physical; whatever its origin, the basic fact is that it is failure or inefficiency of histophysiological function. All indications intimate that this structural incompetency resides within the histological elements. The etiology of the disease suggests it. In the congenital cases, for instance, there is a deficiency from the very beginning of life. The body as a simple physiological mechanism fails to functionate normally. It reacts to its environment in its own particular and irregular way, a way, however, that is relatively constant for itself. It is a badly constructed machine and, therefore, is bound to work badly, however favorable the influences may be that are brought to bear upon it. In the acquired cases this same deficiency of physiological function is brought about in a previously healthy organism by such deleterious factors as malnutrition, toxemia, prolonged strain or trauma. It is more or less temporary, therefore lasting as long as the above enumerated causes are in operation. Obviously it may represent the incipient stage of some disease of known value and toxic origin. This physiologically inadequate neurasthenic state is represented systematically by rapid and early exhaustion, by excessive fatigue and by deterioration of function. It invades all spheres of organic activity, somatic and visceral. As I have stated elsewhere, the exhaustion is characteristic of the entire nervous system. It is a disease of the nervous apparatus *in toto*. Though in different patients it may manifest itself more prominently, through the cerebral, spinal or peripheral nervous apparatus, according to the peculiar

constitutional and temperamental predilection of the patient, there is no good reason for subdividing neurasthenia into sexual neurasthenia, gastric neurasthenia, etc. One does not divide typhoid into diarrheal, febrile and delirious types, because individual patients exhibit more prominently enteric, febrile or neurotic symptoms.

As the etiology strongly suggests, as the symptomatology frankly declares, and as the experimental work of Hodge, Vas, Mann, Starr, Thomson, Wright and others intimates, neurasthenia, unlike hysteria, partakes of the nature of what we call in pathology an organic disease. True, the lesion may not be gross and observable; it is probably histophysiological, the clinical manifestation of irritable weakness, depending upon molecular or chemical intracellular modifications. These modifications, however, are organic abnormalities unobservable through the microscope though, lesser and finer in degree. They explain the relative constancy and uniformity of the symptomatology of this disease, when once established in any given case, as compared with the psychic changeability, instability and distribution of the symptoms seen in hysteria.

It has just been noted that both hysteria and neurasthenia implicate more or less the entire organism in all of its various forms of activity. Herein lurks the source of much confusion when a differential diagnosis is being attempted. Psychasthenia naturally bears some similarity to the mental state of hysteria. Sexual neurasthenia, with its high degree of excitability and irritability, obviously recalls some of the features of hysterical erotomania. Both hysterical and neurasthenic complain of headache, spinal tenderness, insomnia, vertigo, disturbed sensory and motor phenomena. But, after all, these manifestations are only superficially the same in both cases. In the hysterical careful examination will betray their psychic origin, whereas in the neurasthenic it will be seen that they are due to histophysiological deficiency. In the former they come and go with the patients' mental vagaries; in the latter they are more constant, fixed and uniform. In hysteria they constitute, even when small in number and mild in degree, the complete picture of the disease in the particular case under examination; whereas in neurasthenia there is a more elaborate complexus of symptoms, involving more uniformly the entire organism. To illustrate: a monoplegia, a hemianesthesia, an amaurosis, an aphonia of hysterical origin is very apt to dominate the symptomatic field so that other symptoms present will require the highest degree of skill and patience to detect. Even then the latter will sometimes be so slight and evanescent, the patient's ego being completely absorbed in the one or two dominant symptoms, that they will not be given their due importance in the establishment of the diagnosis. How often it is repeated that, after all, perversion of the usual color fields is about the only positive sign of hysteria, because this is the only symptom that is wholly beyond the control of the mind! But this symptom is far from being always present. In contradistinction to all this, the spinal tenderness, sexual irritability, brain fag, muscular weakness, visceral inadequacy of neurasthenia will practically never be found to be unaccompanied by more or less of a host of characteristic neurasthenic manifestations.



The neurasthenic, as a rule, is full of complaints. His enumeration of his symptoms is apparently interminable. He seems to himself to be all wrong, and hence he whines and worries and is hopelessly given to introspection and self-analysis. His heightened self-consciousness is in striking contrast with the phlegmatic egotism and subconscious self-absorption of the hysteric, just as the greater multiplicity of his symptoms are in contrast with the fewer, but greater dominance of those fewer symptoms in the hysteric. The psychic nature of hysteria and the histophysiological nature of neurasthenia is, of course, the explanation of this clinical distinction between the two diseases.

Enough has thus far been said I think to indicate the positive difference between hysteria and neurasthenia in regard to their pathogenesis and physiopathology. In order to verify this difference I will now briefly analyze a few of the more prominent symptoms common to both affections.

#### MENTAL STATE.

In both diseases all forms of mentalization may be involved. It would take an entire paper to treat the subject in detail. Let it suffice, therefore, to remind the reader of the freakish, rapid alterations in the hysteric's powers of memory, imagination, volition and judgment. How weak is her attention! How glaringly is her instability shown in the emotional sphere! Her ego is most curiously and decisively disintegrated and disorganized. Her personality changes like the clouds. Now gay, now sad, she passes, lightning-like, from laughter to tears. Her memory fluctuates from a clairvoyant-like brilliancy to an idiotic blank. Her imagination revels in the horrors of hades and the ecstasies of heaven. At times her volition is absolutely unconquerable; at other times it is as pliable as wax. Rarely her reasoning suggests the power of instinct, if not of genius; more often it is exasperatingly silly and infantile.

How unlike all this is the mental state of the neurasthenic or phrenasthenic when contemplated in its entirety. Two words may be used to characterize it completely, weakness and fatigability. The ego or personality is not markedly changed. It is fretful, whining, depressed and devoid of poise and self-control. Its inefficiency for normal reaction to the external environment tends to turn it in upon itself, thus setting up the neurasthenic's besetting sin, introspection. Memory fails to hold as it used to do, especially the recollection of names and the more recent events. There is an amazing diminution in the power of attention and concentration of thought. During reading the mind wanders off upon other subjects, though the eyes go on taking in the printed words.

A continuous well-knit line of argument is difficult of maintenance. The imagination toys with the disagreeable, horrible and disastrous. It establishes a dread as the prevailing tone of the feelings, and this leads to a partial aboulia. The will power, as a matter of fact, is weak and evanescent. It is frequently lacking in initiative force, but more often it reveals only a want of continuance. The reasoning process is unequal, unsustained, incomplete and disconnected. All of this is so distinct that



it is keenly and sadly noted by the patient himself, which fact in itself is a fairly good sign of differentiation. It is the self-consciousness which I have spoken of above as opposed to the complete egotistic self-absorption of the hysteric.

Of all the processes of mentalization, the imagination seems to be the one that is about equally exaggerated in both hysteria and neurasthenia. In the former the exaltation appears to be the result of a lack of higher inhibition. There is a flow of ideas, rapid and changeable, that suggests the mental state of a mild mania. Metaphorically speaking, it is a sort of psychic spastic paralysis. Judgment rests upon and controls the imagination; when the judgment is weak or in abeyance, the imagination occupies the entire field of activity. This is analogous to what is seen in the organic sphere where a lesion of the controlling cortex and pyramidal tracts leads to exaggerated reflexes and muscular spasticity. Moreover, the judgment being the last psychic function to be developed, and therefore absent in children and undeveloped adults, it is clear why hysteria often takes on the general appearance of infantilism. Hence the alterations of character and the oftentimes senseless and purposeless acts, the prevarication, the instability and unreliability of the hysteric, the tout ensemble picture which so often disgusts and even angers the bystanders, are not the result of mere mental enfeeblement, but rather of mental disorganization. There is no fixity in the patient's motives. She is a prey to every gust that whirls down upon her mental horizon. To understand the attitudes, the speeches, the sensations, the whole outward exhibition of these patients one must clearly recognize the psychic state, the peculiar erethism, and then, as far as possible, trace the underlying ideas to their source. In neurasthenia the imagination depicts all sorts of disasters. It is irritably weak and depressed and its more or less constant gloominess is reflected in the weakened processes of the higher reasoning faculty. The judgments are all tinged with a dark negative view of life. Everything is seen through blue glasses, as it were. The whole mind is in a state of psychic pain, psychalgia. Often the melancholia is so severe that insanity is thought of by the patient and his family physician, while suicide is feared. Surely this is all easily distinguishable from the egotism, subconscious self-absorption, mere erethism and mental disorganization of hysteria!

The hysteric is the victim of fear, the neurasthenic of anxiety. The fear of the former is the direct product of her imagination, the anxiety of the latter is the product of the imagination reflected in the judgment. The hysteric has no particular judgment in regard to her fears. She is less self-conscious, less self-analytical than the neurasthenic is. She fears, she knows not why or what, simply because she is fearful. She fears sometimes the frightful images conjured up by her uncontrolled imagination, just as she fears when having a frightful dream. In all of this, like the dreamer, she has no real comprehension of the degree and quality of her trouble. All of her manifestations are to herself, especially, therefore, mere ordinary phenomena, logical and to be expected under the circumstances. Indeed, as manifestations they are regarded by herself

with a certain degree of indifference. Analytical introspection is quite wanting, though self-absorption is perfect. She cries, laughs, undergoes contortions and passes through all sorts of automatic and somnambulistic exhibitions quite as a matter of course. While in this state these manifestations are part and parcel of her own ego and are as little remarked by the patient as is the possession of her ears. The hysteric, for obvious reasons, therefore, never whines or frets about herself except through suggestion from too sympathetic friends and relatives. Indeed, on the contrary, she usually, if not coddled, takes an egotistical pride in her own oddities and performances as being something which, belonging to herself alone, sets her above and apart from the rest of humanity. The old adage, that a fool never knows when he is a fool, is a strikingly true one of the hysterical individual. The neurasthenic, on the other hand, is keenly conscious of his own deficiency. His ego stands apart, as it were, in its integrity contemplating its own histophysiological inadequacy. He sees he is not what he ought to be and used to be. His egoism is the laudable, though perchance exaggerated, self-concern of an anxious and worried individual. For example, his deficiency of volition is so intensely appreciated that it angers and annoys him even to the point of driving him at times to herculean efforts. But his efforts soon decline in force and persistency, much to his own chagrin and disappointment. The distinction which I am endeavoring to emphasize between the mental state of hysteria and that of neurasthenia is a most important one, I believe, in the matter of differential diagnosis. Moreover, it explains the usual indifference of the hysteric to treatment as compared with the eagerness, hopefulness and unceasing effort of the neurasthenic to find some means of cure.

#### SENSORY PHENOMENA.

Paradoxical as it may sound, the sensory abnormalities of hysteria are seen more clearly along normal lines than are the sensory abnormalities of neurasthenia. By this I mean that exaggeration and diminutions of the normal sensations predominate in the former disease, whereas perversions of the normal sensations obtrude most in the latter. Hyperesthesia and anesthesia, in all their varying degrees, of both the general and special senses, are seen in hysteria as the common place symptoms; paresthesia, on the other hand, seems to prevail in neurasthenia. This, of course, is not an absolute rule. No rule is ever absolute in connection with sensation, since sensation is ultimately always a psychic phenomenon. It should not, therefore, be employed or depended upon in all cases for purposes of differential diagnosis. It is merely helpful when used with other aids. For example, one may distinguish, and profitably so, the "lead-cap" heavy sensation sometimes called headache, headache en casque, the tinnitus aurium, the museae volitantes, the psychomuscular fatigue or the cutaneous formication of neurasthenia from the well-defined elavus, the auditory hallucinations, the partial and complete amauroses, the spasms and paralyses and cutaneous anesthetics and analgesias of hysteria. The hysteric, being psychically, rather than merely physiologi-

cally deformed, tends to emphasize or disregard her inpouring normal sensations; she attaches to them a plus or a minus valuation. The neurasthenic, on the other hand, being more or less histophysiologically affected, in his mind perceives and gives all sorts of bizarre interpretations to the actually abnormal and confused inpouring sense stimuli.

The same explanation makes plain the peculiar distribution of the sensory manifestations in each disease. The headache of neurasthenia, for instance, involves more or less of the whole head, follows unwonted exertion, and is descriptively more of a parathetic condition than a distinct exaggeration of the pain sense. I remember a neurasthenic patient who protested vehemently against my use of the word headache in connection with her peculiar cephalic distress. She said she suffered at times from genuine headache (which I discovered to be migraine), but that this soreness which she now complained of over the entire cranium was most emphatically more of a tight, distressed feeling than a pain and always appeared when she was tired and worried. Another patient described her cephalic distress as though a thousand strings were fastened to the top and back of her head and some one were steadily pulling upon them all at the same time.

In neurasthenia the paresthesias of the special senses are usually bilateral; in hysteria the hallucinations of these same senses are more often unilateral. The tingling, pins and needles sensation, hot and cold flashes of the neurasthenic are prone to be scattered and anomalous in their distribution; the hyperesthesia and anesthesia of the hysteric are commonly unilateral or glove and stocking in type. The mind is cognizant only of the purposive physiological segmentation of the body, not of its intimate anatomical arrangement. The same explanation applies to the concentric narrowing of the visual fields and over-lapping of the color areas so typical of hysteria, and the utter absence of these manifestations in neurasthenia. In neurasthenia the whole spine is usually said to be sore and distressed. In hysteria, percussion reveals certain spots, suggestive in location, that are alleged to be tender and painful. These spots are mostly in the lower cervical and upper dorsal spine and tip of the coccyx.

The so-called hysterogenic zones over the ovaries and beneath the breasts are naturally prominent. Pressure upon them produces discomfort in the neurasthenic, but not a hysterical outbreak as in the hysterical woman. The sensory phenomena react to electrical and other modes of physical stimulation in a highly distinctive way in the two diseases. In hysteria they come and go almost magically, according to the psychic suggestion that is administered along with the stimulation. In neurasthenia they are always aggravated, later on if not immediately. It is commonly recognized among clinicians of large experience that electrotherapy is uncertain and full of surprises when employed in the treatment of hysteria; but is uniformly disastrous, except when the patient is well along in convalescence, in the treatment of neurasthenia.

## MOTOR PHENOMENA.

Need more than a word be said to remind the reader of the dissimilarity between the spasms and paralyzes of hysteria and the mere psychoneuromuscular fatigability of neurasthenia? The complete paraplegia, hemiplegia, and monoplegia, psychic in distribution and psychic in changeability, are never seen in neurasthenia. At times the partial paralyzes of hysteria may simulate the profound weakness of neurasthenia. It is to be noted, however, that the paralysis is less widely distributed than the weakness; that it tends to be localized, whereas the latter is always generalized; that it maintains a certain correspondence or parallelism with psychic suggestion or imitation; that it is not persistent or uniform, but changes with the patient's mental attitude; that it is never flaccid, with diminished reflexes and electrical changes; and that under volitional effort at movement it is as pronounced at the end as at the beginning of the effort. Recently I had under my observation a complete right-sided hemiplegia in a woman who, for many weeks, had nursed her husband with the same condition from an organic lesion. The simulation was perfect, except for loss of speech. This with other signs, and the fact that her recovery was sudden, indicated the psychic origin of the trouble. It is a good trick to ask the paretic hysteric to grasp your hand and continue to squeeze it for several minutes. Often she does squeeze it and vigorously in spite of her alleged paresis; always, however, she unconsciously varies her grip during the squeeze, thus following her momentary mental aberrations. The hand grip of the neurasthenic *per contra* is strongest first; then it rapidly and steadily declines in vigor and finally terminates in more or less of a weak tremor.

The distribution of the paralysis is a cardinal point of differentiation between the two diseases. As the result of a shock supposedly electric and received from a telephone apparatus during a severe thunder storm, a man whom I saw in consultation exhibited paralysis of the tongue and of the entire left arm. He ate, nevertheless, three good meals a day and experienced no difficulty in the swallowing of fluids. When I tried both of his arms, held them out horizontally and then suddenly let them go, the left arm delayed in its descent, not falling like the healthy right arm and not at all like an arm paralyzed from an organic lesion. The patient's mind was riveted on the left arm. This patient had also complete aphonia, incomplete glove-like anesthesia of the left hand and arm up to a point just above the elbow and a pupillary reflex that was slow to accommodation. No organic lesion could have produced such an irregular and anatomical grouping of symptoms. Nine or ten months later I learned that the patient had been suddenly and completely cured by being thrown from a buggy during a runaway.

## REFLEX PHENOMENA.

Like the voluntary motor symptoms, the reflex vasomotor and secretory manifestations take on, in the same general way, the psychic complexion in hysteria and the patho-physiological in neurasthenia. Often I have observed, for instance, that the pupillary accommodative reflex is relatively slower than the light reflex in hysteria. It remotely sug-



gests an inverse Argyll-Robertson pupil. It is probably due to the fact that accommodation is somewhat dependent upon the will power, whereas the light reflex is wholly beyond the patient's control, is, in fact, a pure physiological reflex. Such dissociation of the pupillary phenomena is never seen in neurasthenia, here both the light and accommodative reflex decline in promptness and vigor upon prolonged stimulation.

Take another illustration of the difference between the two diseases in regard to their reflex exhibitions. The knee jerks in hysteria are usually normal or, if anything, slightly exaggerated. Upon steady continuation of the test for several minutes the force and amplitude of the kicks do not materially change. In neurasthenia, on the other hand, there is as a rule a slight initial exaggeration, soon followed by a slight steady uniform decline. A few moments' rest restores the exaggeration. This cycle is fairly characteristic and resembles in a way the so-called myasthenic reaction observed in myasthenia gravis.

The presence of a foot clonus in both hysteria and neurasthenia should be regarded with a high degree of scepticism. If not really due to an incipient disseminated sclerosis or other organic trouble, it may represent a mere coarse tremor. In that case it will betray, like all the tremors seen in hysteria and neurasthenia respectively, the psychic origin of the former and the physiological weakness of the latter. In hysteria it will lack the regularity and persistency of the organic clonus. Moreover, it will easily be seen to be somewhat subject to the patient's will power. In neurasthenia it will reveal an early exaltation and irregularity followed by a steady progressive decline.

The same differentiation is to be noted in those reflex manifestations that implicate the vasomotor and secretory mechanisms. The neurasthenic girl blushes upon the slightest provocation; the hysterical woman rarely. The neurasthenic orator complains of the dryness of his throat when first he appears before his audience; the hysterical egotist suffers no such embarrassment. The secondary spasms and paralyses of hysteria attack the vasomotor and secretory mechanisms, producing, for instance, transient polyuria, dermatographic conditions, and other functional anomalies; but all of these, being purely psycho motor in origin and amenable to suggestion, are easily distinguishable from the somewhat similar manifestations due to the weakened organs. Not the symptoms themselves, but their psychic and organic interpretation respectively, determine their hysterical or neurasthenic origin.

#### GENERAL PHENOMENA.

How singularly clear the distinction between the two diseases is when one studies closely some of the general phenomena common to both, as, for example, the insomnia, the restlessness, the appetite, the vertigo and the various manifestations connected with the alimentary, circulatory and sexual functions! For instance, the insomnia. The hysterical indulges in definite and prolonged periods of wakefulness as well as of sleep. There is nothing strikingly abnormal about either of these except in regard to their time relationship. The sleep may be so profound that it amounts to a state of lethargy. The wakefulness may become an actual

vigil. Nothing like this is ever observed in the neurasthenic. Here the insomnia is merely relative; indeed, it can hardly be said to exist. The patient sleeps in an irritably weak sort of a way just as he thinks and does everything else. He dozes and wakes up and then goes to sleep again in a continuous round of short frequent cat-naps day and night, all of which when added together will be found to represent pretty nearly the full amount of sleep required in the twenty-four hours by a normal individual who does not subject himself to any more arduous mental and physical labor. And again compare the spells of frank gluttony (boulimia) or of prolonged fasting (anorexia) indulged in by the hysterical individual with the dietary daintiness, the irregular, uncertain, kittenish picking up of the food characteristic of the neurasthenic. As a final illustration, note the difference between the two diseases in regard to the much complained of cardiac palpitation. What the hysteric speaks of is usually a mere subjective sensation. Under high emotion her palpitation may be very real; but then it is relatively normal, being analogous to the action of the heart in an excited normal individual. The cardiac palpitation of hysteria, so often and loudly complained of, is generally accompanied by a normal regular pulse. The neurasthenic palpitation, on the other hand, is less frequently associated with pain and is almost invariably accompanied by easily demonstrable intermittence of pulse, arrhythmia, allorhythmia or even bradycardia. Moreover, it is provoked by physical exertion and strain as well as by psychic shock. In fine, cardiac palpitation is closely linked with an underlying psychosis in hysteria, whereas in neurasthenia it is more obviously dependent upon histo-physiologic insufficiency.

Thus I might go on through the long list of symptoms attributable to both diseases and show that the clinical distinction between them is founded upon a genuine and positive difference in their natures. At times all diseases are so complicated and obscure in their clinical presentations that a differential diagnosis is extremely difficult, if not impossible, to make. Hysteria and neurasthenia are no exception to the rule. Their differentiation, however, is no more difficult than is the differentiation between any other two diseases.

#### TREATMENT.

When the medical attendant is fully cognizant of the essential difference between hysteria and neurasthenia as outlined above he will adopt a rational line of treatment in the management of each respectively and will thereby secure correspondingly more favorable results.

In hysteria, the psychonemosis, the mind is at fault primarily and virtually is the cardinal point of attack. Psychotherapy covers the whole treatment. To take intelligent charge of a case of hysteria is a herculean task. It demands the highest degree of tact, knowledge and resourcefulness on the part of the attendants. Physician, nurse and family must all bring proper influence to bear upon the patient's mind to change the ideas and motives. The family is, from the very nature of the case, quite unable to do this and so must always be excluded. This means the complete isolation—"quarantine," as one of my patients called it—

of the victim. The nurse must be congenial, must be fully alive to the magnitude and delicacy of the task before her, must know something of the power of mental influence, and must take some innate delight in the opportunity of moulding another's thoughts and character. Whether chatting, reading or walking with her charge, giving her baths, massage, food or electricity, in every way and at every moment when in touch with her, the nurse must remember that the patient's mind is more or less malleable in her hands for good or bad. She must study hard to impress it in the right direction if she desires success. What is demanded of the nurse is even more emphatically required of the physician. He must be somewhat—yes, very much—of a psychologist. His paraphernalia and daily régime for the patient, including his manners, conversation and mode of approach, the books he elects for her reading, her general environment, dietary, baths, massage, electricity, exercises and medications, must have one object only in view, namely, a modification of the patient's mode of thinking and motives of action. Instead of a mere physician, he must become a character builder. Only in a secondary way, and then merely for accidentally associated physical requirements, are physical agencies to be employed. These truths are axiomatic in the modern successful treatment of hysteria. Psychotherapy is the specific for this great psychosis, even as mercury and the iodids are for syphilis.

The treatment of a case of neurasthenia is quite different from all this. Here the victim needs actual physical reconstruction. Psychotherapy plays a secondary rôle, and that merely to influence the patient to submit to the necessary régime. Mental and physical rest, using the word rest in its broadest sense to include change, is now enjoined. Habits that involve the physiological nutrition of the body are regulated and corrected, toxemic conditions that may be present are overcome. Tissues, especially the neural tissues, are to be built up. Hence properly selected and abundant food, baths, massage, electricity and exercise conducive to higher and better metabolism are to be ordered. The details of all this I have discussed and outlined elsewhere. Here I desire merely to urge the cardinal distinctions between the treatment of hysteria and that of neurasthenia, a treatment such as is rationally called for by the respective natures of these two common and protean maladies.

## PRACTICAL VENEREAL PROPHYLAXIS.\*

DENSLOW LEWIS, M.D.

The Delegate of the Section on Hygiene and Sanitary Science of the American Medical Association,

CHICAGO.

During the past few years the attitude of the medical profession towards venereal prophylaxis has undergone a marked change. To-day the sentiment may be said to be almost unanimous in favor of publicity. The medical press which only a few years ago refused, in some well-known instances, to publish any reference to sexual hygiene or prostitu-

\* Presented to the Fifty-seventh Annual Meeting of the Illinois State Medical Society, held in Rockford, May 21-23, 1907.

tion, now takes note of all attempts at prophylaxis and even advises in editorial comment methods not long ago tabooed or, what is worse, totally ignored.

Medical societies have also taken action in this regard, notably the State Medical Societies of Washington and Michigan. In the latter state a standing committee was created two years ago which shall act as "the exponent and executive arm of the society in dealing with this important matter of venereal diseases."<sup>1</sup> The Washington State Medical Association appointed a committee on venereal prophylaxis in 1903. Two years ago the report of the committee shows, in answer to an inquiry regarding methods of instruction in use in various clinics throughout Canada and the United States, that thirty-two give verbal instruction only and two issue pamphlets on venereal diseases. The society suggests a permanent committee on venereal prophylaxis to compile and issue proper pamphlets to be distributed by the profession. The committee of the Washington state society, under the able leadership of Dr. G. S. Peterkin of Seattle, has prepared five pamphlets which consider the frequency and economic dangers of venereal diseases, the facts concerning gonorrhea, rules for persons having gonorrhea, together with rules to prevent complications and aid cure, facts concerning syphilis and instructions for persons having syphilis. Each pamphlet is written in plain language, can be read in three minutes, and is of convenient size to be carried in an envelope or pocket book.<sup>2</sup>

In 1901 the American Medical Association, as is generally known, effected a definite organization. Prior to that time attempts to interest the profession in venereal prophylaxis by favoring educational methods were, to say the least, unsuccessful. Valentine's experience<sup>3</sup> and my own on two occasions illustrate the former intolerance of professional opinion even to the mention of such "filthy" subjects.<sup>4</sup> One object of such organization is said to be "to federate the medical profession of the United States for the purpose of enlightening and directing public opinion in regard to the broad problems of state medicine."<sup>5</sup> At the Saratoga meeting in 1902 the oration on State Medicine said, "Compulsory examination of prostitutes is another necessity for the purpose of preventing the spread of venereal diseases. It is said that either the city of New York or Chicago contains at the present day venereal infection sufficient to contaminate the male population of the United States in a very short space of time. We do not want legalized prostitution as it exists in European countries. I do not believe in authorizing houses of debauchery and making of prostitution a regular profession. The state has no right to regulate prostitution. I am proud of my country, which is fortunately free from the incubus of state regulated vice. All that is desired is a

1. Jour. Mich. State Med. Soc., Sept., 1905.

2. G. Shearman Peterkin: A System of Venereal Prophylaxis that is Producing Results, Am. Med., Aug. 19, 1905.

3. Proceedings of the Nineteenth Annual Conference of State and Provincial Boards of Health of North America, p. 62.

4. Denslow Lewis: The Advocacy of Publicity Regarding Venereal Prophylaxis; a Personal Experience, Pacific Med. Jour., August, 1906.

5. Jour. Am. Med. Assn., vol. xxxvi, p. 1643.



state law for municipal governments to keep a register of all women known or suspected of prostitution and that such women shall be liable at any time to be called in for examination. But no certificates should be issued to them as to their healthy or unhealthy condition, for such a certificate would simply encourage the vice. However, if found affected with a venereal disease, they should be sent to a detention hospital or sanitarium and should be detained there until cured." The Massachusetts law is favored, which advocates that "a suitable hospital or sanitarium devoted to diseases peculiar to prostitutes should be established in each and every city, with the power to place and keep there all women so diseased until cured. The hospital should not be intended as a prison, for such is directly contrary to reformation. Liberal arrangements as a hospital would afford no encouragement to vice and would certainly help wonderfully to eradicate the evils."<sup>6</sup>

Holton of Vermont introduced in the House of Delegates the resolution of Ludwig Weiss which had been adopted by the Section on Cutaneous Medicine and Surgery. It states that, "since there lies in the province of the medical profession the task of recommending to the respective state legislatures and municipalities means, not regulamentative, but social, economic, educative and sanitary in their character, to diminish the danger from venereal diseases, it is resolved that the Section on Cutaneous Medicine and Surgery invite the Section on Hygiene to cooperate with this section to bring about a propaganda in the different states looking toward the recognition of the dangers from venereal diseases and to arrange for a national meeting similar to the International Conference at Brussels." Sanders of Alabama suggested a committee of six members from the two sections "to stimulate the study in and the uniform knowledge of the subject of the prophylaxis of venereal diseases and to present a plan for a national meeting."<sup>7</sup>

This committee reported at the New Orleans meeting in 1903 that there is an utter lack of laws to combat venereal diseases. "Seventeen states have the usual laws and sundry police regulations of general character against houses of ill fame, including specified nuisances therein, against soliciting in streets and against enticing females under 16 years of age." There was in no state a sanitary marriage law providing for medical examination of the contracting parties, no law against wilfully or knowingly communicating venereal disease and no municipal regulations in existence in any city in reference to venereal disease. There were police regulations of a general character which were confessedly a dead letter; Detroit and Cincinnati had regulation on the continental plan. There was a scarcity of beds in every city for the accommodation of venereal patients. The committee again favored a national conference on venereal prophylaxis and suggested that the American Medical Association ask the accredited delegates from each state, or appoint a special committee, to organize a movement in the different states to influence all state legislatures to appreciate the necessity of legislation against venereal

6. Jour. Am. Med. Assn., vol. xxxviii, p. 1577.

7. Jour. Am. Med. Assn., vol. xxxviii, p. 1660.

diseases. The committee recommended the appointment of a central committee organization to be in touch with the various state committees. The House of Delegates adopted these recommendations. It advocated the continuance of the committee to act as a central committee as suggested, the creation of cooperative committees to be composed of one member from each state appointed by the president of the state society, and it provided for a meeting at the St. Louis Fair in 1904 and advised trying to get \$5,000 from Congress for that purpose. Evidently the committee failed in its effort, for I find no reference in medical literature to the proposed conference at St. Louis.<sup>8</sup>

At the 1904 meeting of the American Medical Association the Section on Hygiene presented a symposium on venereal diseases. In the House of Delegates the committee on venereal prophylaxis made its second report, which was most comprehensive. Attention was directed to legislative measures which minimize the ravages of tuberculosis by making it reportable to boards of health, and to prohibition and high license which "tend to curb the alcoholic demon." It was said that "government, state and municipal officials, university regents and the educated public generally are imbued with endeavor and good will to check the alarming spread of venereal disease." The general public, however, "dolefully ignorant, indolent, and unwittingly but criminally careless, must be reached, educated and enlightened as to the importance, dangers of acquiring and the dire consequences of disseminating venereal diseases." The committee reached the conclusion that "systematized action emanating from the medical profession—a dissemination of knowledge to teach the populace the hygiene of sexual life—is the first step to diminish the dire consequences of venereal disease." The recommendation was again made that national and state societies for combating venereal diseases be created, but the House of Delegates decided that the Section on Hygiene "do the work necessary for the opening of this important matter."<sup>9</sup>

At the Portland meeting in 1905 nothing was done relative to venereal prophylaxis either in the Section on Hygiene or the House of Delegates, but at the Boston meeting in 1906 the Section on Hygiene presented a special symposium on the subject; the crimes against woman and the relation of alcohol were also considered. The cordial cooperation of many who are eminent in the profession and in philanthropy made it possible to present a series of papers of very great practical value which are now published in book form. In the House of Delegates certain resolutions relative to the advisability of continence, the necessity of teaching the public regarding venereal infection, and the desirability of reporting venereal diseases, adopted unanimously by the Section on Hygiene, were referred to the Committee on the Improvement of the Treatment of Uterine Cancer, but this committee took no action. It did, however, report in favor of devising some ethical way of instructing the people regarding matters of public health. It submitted a plan for the organiza-

8. Jour. Am. Med. Assn., vol. ix, p. 1384.

9. Jour. Am. Med. Assn., vol. lxii, p. 1645.

tion of a General Board of Public Instruction to be composed of members of the different sections of the American Medical Association.<sup>10</sup>

The International Conference, first held at Brussels in 1899, has been referred to. As early as 1902 it was hoped a similar conference might be held in America, but, as already stated, the hope was not realized. At the second Brussels conference, held in 1902, it was recommended that there be organized in all countries special societies "for the study of the best means of every order—moral, legislative, social, as well as medical—to be employed in the prophylaxis of these diseases."<sup>11</sup> Such societies have been organized in Germany, France, Italy, Spain, Holland and other European countries. In February, 1902, the American Society of Sanitary and Moral Prophylaxis was organized in New York, and to-day also Philadelphia, Detroit, Milwaukee and Chicago have branch or similar societies. These societies vary in their activity, but whenever public meetings have been held clergymen, teachers, lawyers and public-spirited men and women from all walks of life have favored an educational campaign against the venereal plague and have demanded an active propaganda which shall teach the truth.

Thus it is seen that at last there is a prospect of definite action along educational lines and the outlook for consistent prophylaxis is encouraging. In the meantime there is work for every one of us to do. No educational effort regarding venereal diseases is adequate without full consideration of the hygiene of sex. Thus the attempt to limit venereal infection will restrict at the same time abortion, illegitimacy, infanticide, and other results of a misdirected sexual instinct. For several years past I have not hesitated to express my views on this important subject. I am now asked regarding actual means which are practicable, and I attempt to outline a plan of campaign, which, with certain modifications to meet local conditions, is, to my mind, feasible and desirable.

Its first essential is frankness, telling the truth to everybody. Its details have to do with aiding parents to teach their children, helping educators, from the kindergarten instructor to the university professor, to impart consistent knowledge to their charges, showing the employer how venereal diseases incapacitate his employes, informing the public of the extent and seriousness of these diseases, the possibility of innocent infection and the need of scientific treatment. This means the creation of a rational public sentiment which will appreciate actual danger and override and put down all maudlin sentimentality and all ignorance that parades as innocence, in the earnest effort to afford protection by an exposition of the truth.<sup>12</sup> Incidental to such an educational propaganda must be a revision of our school text-books on physiology, supplementary instruction by medical teachers, and the repeal or modification of our obscenity laws which to-day place every author of a popular book on sex topics at the mercy of an ignorant jury. As a further important incident

10. Jour. Am. Med. Assn., vol. xlv, p. 1878.

11. Prince A. Morrow: *The Society of Sanitary and Moral Prophylaxis; Its Objects and Aims*, Am. Med., Feb. 27, 1905.

12. Denslow Lewis: *Ignorance as a Cause of Disease and Disaster*, Ill. Med. Jour., January, 1906.

in venereal prophylaxis, the care of the prostitute who is the chief source of infection must be mentioned.<sup>13</sup> To accomplish any positive result, the medical men of our country must be up and doing. The time has come when in every community their efforts will be sustained and encouraged. Their advice will be welcomed, their endeavor will be appreciated, there will be intelligent cooperation by the public, and the results obtained will be productive of good to all.

Furthermore, and this presents formidable obstacles to be surmounted, the public press must come to our aid in the dissemination of actual knowledge. Papers presented to medical societies and printed in medical journals are of relatively little value to-day when the profession acknowledges the need of teaching the public. To reach the people, the daily newspaper must print the truth so that the people may read it. My own efforts have failed to induce some of the leading periodicals of the country to publish any reference to sex topics or venereal disease. When, however, I addressed public meetings in Detroit, Buffalo and Erie, Pa., the newspapers favored me with good reports, covering often one or two columns.

To show the usual attitude of the press, I instance one occurrence. When the National Purity Federation adjourned at the conclusion of its session in Chicago last fall, several clergymen and their wives, together with others interested in rescue work, visited the slums. My individual opinion regarding the value of such an excursion is immaterial, but in fairness it must be admitted that there was no more impropriety in it than there is when delegates to a medical convention visit clinics and hospitals. The reporters seized upon this incident and described all details, but a few words sufficed to report the praiseworthy proceedings of the meeting. Of the wealth of information furnished by rescue workers, clergymen, a few physicians and noble-minded men and women whose lives are consecrated to the cause of humanity, only meager details, exploited in a sensational manner, reached the public; but the remarks of the saloon-keepers were reported verbatim and the actions of drunken denizens of the dives were described in full. The paper I had read by invitation was offered to the daily press and promptly returned with the explanation: "The policy of our paper has been to avoid discussion of the sex relation in our columns and, therefore, I should not feel justified in publishing the article." Three other papers which I wrote for the public in language which several representative women in Chicago assure me is unobjectionable were also refused publication by the *Arena*, the *Saturday Evening Post*, the Hearst syndicate and the *Ladies' Home Journal*.

Prophylaxis in children is favored by removal of all sources of irritation which predispose to congestion of the genitals. Retained smegma under the prepuce, impacted secretion around clitoris or adhesions of the parts are easily relieved by simple surgical procedures, and cleanliness should be taught and maintained. The child should also be taught by

13. Denslow Lewis: The Prophylaxis and Management of Prostitution, St. Paul Med. Jour., September, 1906.



reference to the flower and the chick the reproduction of life from the egg. In simple language it may be shown by reference to the dog, the cat or other domestic animal how the human animal likewise carries the egg within its body and gives birth to its young. Attention may be called to growth or development whereby the calf, for instance, becomes a cow, and in this connection salutary instruction in hygiene may be given, because it is easily realized that growth must not be impeded.<sup>14</sup>

As the boy approaches puberty, he should be told of the sexual instinct which exists to insure the perpetuation of the species. It is a masterful instinct because most important, but it should not be indulged until development is complete and the boy has become a man and has been privileged, under the restrictions of religion and civilization, to take his place as the potential head of a family. The new sensations that he experienced at puberty are thus understood and the evil of masturbation is known, because it has been explained as a practice prejudicial to health and development. The importance of the laws of health has been instilled into the child from the earliest moment when he was able to understand anything, and at this time the necessity of care is emphasized in relation to the newly awakened instinct.<sup>15</sup>

The girl should also know the truth. She should be told all that the boy has been told and, in addition, that menstruation is the preparation of her body for the performance, when she is older and is married, of the sacred and important act of reproduction. She should understand that hemorrhage from the genitals is to be expected and that, unlike hemorrhage from any other portion of her body, the loss of blood here is not dangerous, but salutary. She should be instructed in the care of her body during menstruation. She should realize that she is becoming a woman and that it is right for her to care for herself during the menstrual epoch, not only because it ensures good health, but also because by so doing she prepares herself for the fulfillment, in adult life, of the supreme duty incident to motherhood and the perpetuation of the species.

This much should be told every child by its parents, but, alas! the parents themselves are too often ignorant or careless and thus are neglectful of their duty to their children. Moreover, many parents fail to realize the need of this instruction or, at best, they do not know just how to talk to children. They are apt to think it is a nasty topic and to exaggerate the value of a Christian home and surroundings of culture and refinement as the only necessary safeguards. Parents should be given to understand—and here the physician's duty becomes apparent—that the sexual instinct exists in every normal child, dormant to an extent, but easily awakened into pernicious activity by some chance occurrence and often with the most deplorable result. Moreover, this idea of nastiness must be abandoned when reference is had to the most important of all functions. Parents must be taught regarding this imperious force in every human being and must realize the necessity of imparting adequate

14. Denstow Lewis: *The Limitation of the Venereal Diseases*, *Medico-Legal Jour.*, June and September, 1905.

15. Denstow Lewis: *The Need of Publicity in Venereal Prophylaxis*, *Med. Record*, June 2, 1906.

and accurate information before unfortunate practices occur as the result of the irrational and fantastic explanations which will be volunteered by the child's immature playmates. I insist that the question is not as to the relative value of knowledge or ignorance, often falsely called innocence; but as to the imperative necessity for knowledge; the new sensations experienced by the child demand interpretation, and our duty should make us vigilant so that a timely exposition of the truth may enable the child to repudiate impure suggestions and thus escape disease and disaster. If this is done early there is little danger that the child will follow the immediate impulses, as has been said, "with an increase in the already dreadful evil of self-abuse."<sup>16</sup> On the contrary, the child will avoid all danger, because it is known and the possibility and advisability of continence is understood and appreciated.

But the child must know more, and in the imparting of further knowledge the parent and teacher are usually incompetent and require the aid of the physician who alone can speak with authority. He should talk in a friendly way to the child about conception and reproduction; he will tell of the venereal diseases and how they may be acquired innocently; he will explain about the dominant influence of the sexual instinct and will show how want of control is largely responsible for the existence of the unfortunate prostitute who is the chief purveyor of these loathsome and dangerous diseases. He will extol the dignity of virility; he will show the pre-eminent value of purity: he will inculcate a chivalrous sentiment of honor.<sup>17</sup> The result is that each boy and girl knows that the physician is the best friend. The child realizes that the eminent practitioner has not forgotten that he himself was once young and exposed to similar temptation. He will feel that the family doctor can sympathize with him and can give sensible advice. He will hasten to consult him if nocturnal emissions cause alarm, if he fears he is hopelessly addicted to masturbation or if gonorrheal symptoms appear. He will avoid the advertising quack, for he knows where to find a sympathetic friend, willing and able to help him in any emergency.

Instruction must also be given to the young who live apart from the family. The employes of store and factory, the workers everywhere, the student, the farmer, the married and the single, the rich and the poor—every one must know the truth and understand the great danger.<sup>18</sup> Such a plan of education requires laborers in the vineyard, and each medical man should constitute himself a committee of one in his immediate neighborhood to devise the best means of imparting accurate knowledge. In some instances books like those of Dr. Lyman Beccher Sperry may be advised; in every school a medical lecturer should teach hygiene and the physiology of the whole body; at women's clubs, secret society meetings and, in fact, wherever there is a gathering of men or women the opportunity should be afforded the medical man to speak of these important

16. Samuel Langer: *Sex Instructions in the Schools, Charities and the Commons*, Feb. 9, 1907, p. 874.

17. Denslow Lewis: *How Shall We Teach Regarding Purity?* *The Light*, January, 1907.

18. Denslow Lewis: *Obstetric Clinic*, p. 83.

topics. Each county medical society should have a permanent committee to arrange frequent public meetings. It has been demonstrated in all parts of the country that such meetings are largely attended and that the people are eager to know the truth. In our colleges, especially our medical colleges, there should be regular public lectures on these topics so that all may learn. In addition, special pamphlets free from technicalities should be distributed freely, but in this endeavor to diffuse consistent knowledge there is a serious obstacle to be confronted in the existence of certain United States laws in reference to the use of the mails. Obscene literature is declared unmailable and the author may be fined or imprisoned.

At first thought such a law seems just and desirable. We have all seen certain smutty books which excite our disgust. We shudder to think they may fall into the hands of children, and we are glad when such publications are confiscated and destroyed. Few of us know the law or appreciate its workings. None of us can give a legal definition of the word "obscene," because there is none. All statutes describe what is prohibited as lewd, indecent, obscene, lascivious, disgusting or shocking. In the first English decision on record, Hicklin had sold a pamphlet entitled, "The Confessional Unmasked." It was a political circular to promote the election to Parliament of men who would "expose and defeat the deep-laid machinations of the Jesuits and resist grants of money for Romish purposes." It consisted of extracts from Catholic theologians and was intended, as the author believed, to improve morality. Nevertheless the court held the pamphlet to be obscene and gave this test, which holds to the present day: "Whether the tendency of the matter charged as obscenity is to deprave and corrupt those whose minds are open to such immoral influences, and into whose hands a publication of this sort may fall." In another judicial decision there occurs this statement: "The matter must be regarded as obscene if it would have a tendency to suggest impure and libidinous thoughts in the minds of those open to the influence of such thoughts." Still another judge, after quoting these alleged definitions, remarked: "These are as precise definitions as I can give. The case is one that addresses itself largely to your good judgment, common sense," etc.<sup>19</sup>

Now, if I say triangle there is presented to the mind an object which may vary in many particulars, but which conforms to certain mathematical requirements in a manner that is a matter of common knowledge quite beyond dispute. If I say murder, arson or burglary, we think at once of a specific crime, varying perhaps in degree and punishable in different ways in accordance with custom, but nevertheless clearly outlined and well defined. If I say obscene, who can say what it means? To every juryman it has a different meaning in accordance with his personality. The contemplation of nude figures in an art museum suggests no impure or libidinous thought to the artist or the man of culture; an inspection of the female genitals does not affect the gynecologist. The peasant woman is shocked by the indecency of the society woman's bare

19. Theodore Schroeder: *Liberty of Speech and Press Essential to Purity Propaganda*, *The Light*, January, 1907, p. 64.

neck and shoulders and the society woman is shocked at the peasant woman's bare feet and ankles, especially if exposed in the city woman's parlor.

The most unfortunate circumstance in connection with obscenity law is that no man may know in advance if he be a transgressor. No man can foretell what will be another man's opinion about the probable tendency of a book upon those susceptible to its influence who may chance to read it. The practical workings of the law have been most curious and unjust. Haverlock Ellis' "Studies in the Psychology of Sex" were, I believe, wholly suppressed in England, and the German translation is denied admission into the United States. Another suppressed book is described by a former Attorney General of the Postoffice Department. He says, "It consisted mainly of a description of the causes and effects of venereal diseases and, secondly, of two circulars, one of which described in separate paragraphs the symptoms of various venereal diseases." This was held to be criminal. In 1892 a public school teacher wrote a book called "Almost Fourteen." He submitted it to his wife, the pastors of the Broadway Tabernacle and the Church of the Heavenly Rest and to Dr. Lyman Abbott, all of whom endorsed it. The Rev. L. A. Pope, pastor of the Baptist church at Newburyport, Mass., placed the book in the Sunday-school library of his church. Five years afterward an enthusiastic newspaper reformer of Newburyport, who had incurred the ill will of many influential citizens by exposing the impurity of the city administration, the owners of houses of prostitution, etc., secured permission to republish the book in his paper. He was arrested, convicted and fined.

In 1872 George Francis Train was arrested for circulating obscenity which proved to be quotations from the Bible, and again in 1895 John B. Wise of Clay Center, Kansas, was arrested for sending obscene matter through the mails, which consisted wholly of a quotation from the Bible. In the United States Court, after a contest, he was found guilty and fined. It is to be remembered that courts have often decided that a book, if obscene in any part, is an obscene book within the meaning of the law. Of course, the Old Testament, like all books valuable for moral instruction, contains many unpleasant recitals. At the same time its hygienic teachings are of more than historic interest and in many instances apply with wonderful force to our present civilization. The fanaticism which induced Queen Mary to inhibit reading or teaching the Bible in churches and which, under Edward VI, caused the burning of thousands of Bibles because of the immoral tendency toward private judgment involved in the reading of them, is still conspicuous in certain quarters and would still dominate as in the past. Indeed, the desire to persecute, even for mere opinion's sake, seems to be an inherent characteristic of nearly every man of firm conviction and earnest purpose. Education alone can make us overcome this tendency and teach us the value of toleration which permits advancement by encouraging and liberalizing the study of what each man believes to be the truth.<sup>20</sup>

20. Theodore Schroeder: What Is Criminally "Obscene"? Proceedings of the International Medical Congress, held at Lisbon, Portugal, April, 1906, Albany Law Journal, July, 1906.



My friend William Lee Howard speaks of a young woman who happened to see a portion of a man's garter which held up his silk hose. Upon her return home there began distinct, clear and culminative erotic dreams. These commenced by the subconscious visualization of the garter, and the vital vision led up to what might be seen in a healthy, virile man. One day, in a shop, she saw a duplicate of her fetish, which she instantly appropriated. From fondling the article to masturbation and fetishistic masturbation was a short road. When the kleptomaniac was arrested for stealing garters a large collection of these articles was found in her bedroom.<sup>21</sup> I mention this case to show that under the usual definition the exposure of garters in a shop is obscene. Here was the "mind open to immoral influences" and "the tendency was to deprave and corrupt." Or, in accordance with another definition, we can truthfully say that the sight of garters had "a tendency to suggest impure and libidinous thoughts," because in this case "the mind was open to the influences of such thoughts."

Many other cases could be cited to show the incongruity and absurdity of the law. An author sent to jail in California finds his book, recommended by innumerable clergymen, including several bishops, goes through the mails unchallenged for twelve years and is suddenly declared criminally obscene and suppressed by a postal official. A book is found "not immoral or indecent at all" in Boston and suppressed by fines aggregating over \$5,000 in Chicago. Another book goes through the Chicago postoffice by the thousand each year and is excluded by the Boston postoffice. Even judges have reached different conclusions concerning the obscenity of the same book, and several men have been pardoned because the President did not believe a book to be obscene which a judge and jury had declared to be so. Postal authorities have declared a book not to be obscene, and some state official declares it is obscene and arrests the vendor; sometimes conditions are reversed. In 1899 my own paper on the sexual act was refused publication on the grounds of obscenity by the editor of *The Journal* of the American Medical Association and by two of the trustees and commended by another.<sup>22</sup> It was copyrighted after submission to the postal officials at Washington, and for seven years went through the mails to physicians in all parts of the civilized world without a protest. I make this statement now because the edition is exhausted and the pamphlet is no longer on sale. Otherwise I confess I should be at the mercy of every ignorant, spiteful or impressionable individual.

It is evident this state of affairs is intolerable and a serious interference with the work of diffusing accurate knowledge which is recognized as an important element in venereal prophylaxis. To be sure, certain judges have recognized that an impartial enforcement of the letter of the law would entirely extirpate the scientific literature of sex. They have, therefore, quite in excess of their power made a judicial amendment of the statute, excepting from its operation books circulated only

21. William Lee Howard: Some Forms of Kleptomania the Result of Fetishistic Impulses, *Medicine*, December, 1906.

22. Denslow Lewis: *The Gynecologic Consideration of the Sexual Act*.

among physicians. Such judicial legislation is made under the pretense of "statutory interpretation" and involves the ridiculous proposition that a book which is criminally obscene if handed to a layman, changes its character if handed to a physician; it assumes that a scientific knowledge of sex is dangerous to the morals of all those who do not use the knowledge as a means of making money in the practice of medicine. Thus medical books which treat of sex circulate among members of the profession as a matter of toleranee in spite of the law and not as a matter of right under the law.

If a remedy is asked for, I must confess my inability to give a complete and practicable recommendation. My friend, Theodore Schroeder, the eminent attorney for the Free Speech League of New York, argues that all obscenity laws should be repealed. He claims that obscenity is not an objective fact, not a sense-perceived quality of literature or art, but is only a quality or contribution of the viewing mind which, being associated with some ideas suggested by a book or picture, is, therefore, read into it. He shows how custom sanctions certain expressions which otherwise would shock us. For instance, we may speak of the mare to those who take flight if we call the male horse by name. With like unreason, we speak of an ox or a capon to everybody, of a gelding to many, but of a eunuch to very few without giving offense. He claims the right for every adult man or woman to study sex if they want to do so as freely as they may study law, theology, architecture or any science. The Agricultural Department of the United States distributes information on the best methods of breeding domestic animals, but the advocates of a higher stirpieulture for the sake of a better humanity are often sent to jail.

I am indebted to Mr. Schroeder's writings for the facts regarding obscenity laws which I have submitted to you. I have told him his argument was unanswerable. At the same time I can not bring myself to believe it is practicable to let down the bars completely. The marriage guide which exaggerates symptoms and serves as an advertisement for the mercenary quack and the lascivious pamphlets and photographs which are imported from France cannot, in my judgment, be properly exposed for sale. If there is here an infringement of personal liberty, I beg to remark that all law is a compromise and that the good of the majority must ever be the chief object of our concern. While I make this admission I also insist that the proper education of the public is of supreme importance and that all restrictions to a diffusion of knowledge are inimical to the public good. Of course this statement does not apply to children. As an adult it is my right to read bawdy books if I want to do so; as a minor it is a matter of discretion in others what I shall be permitted to read. No adult has the right to limit the opportunity of another adult to know anything that is to be known, but a parent has the right so to limit the child's opportunity. If parents had access to all scientific books upon sex and our schools did their duty in the matter of instruction, the second generation would find all morbid curiosity dispelled and the quack who thrives only on ignorance and

fear would be put out of business by the general intelligence that would prevail. For the present perhaps it were well to demand that all writings which are endorsed by state boards of health, reputable medical societies, the National Educational Association or other organizations which are acknowledged to have the welfare of humanity at heart, should go through the mails and be offered for sale without placing the author in danger of fine or imprisonment. This much we can consistently advocate to-day and with our state and county medical societies properly organized we can at once hope to secure relief from the oppressive, uncertain and inconsistent law that now restricts unjustly our efforts in venereal prophylaxis.

The prostitute question must also be considered in a common sense manner free from sensational sentimentality. The prostitute is a creature of our civilization; as a factor in the dissemination of venereal disease she becomes of interesting importance in every rational attempt at prophylaxis.<sup>23</sup> At the recent meeting of the State Medical Association of Texas I detailed my views regarding prostitution.<sup>24</sup> For that reason I need now but briefly refer to the fundamental principles which underlie every judicious consideration of the subject. I do not speak now of Christian charity which should protect the young and save the innocent, of the injustice which condemns the one false step on the part of the girl and condones continued and excessive libertinism on the part of the young man. I speak here only of the prostitute as an agent for the propagation of venereal diseases, and I remark first that it is within the limits of the truth to say that it is only a question of time before almost every prostitute becomes diseased. For this reason, if for no other, she should become and remain the object of special concern. It is most unfair to condemn measures that do not eliminate all disease at once. Because we cannot examine all prostitutes several times a day it is unjust to say we should do nothing. Because the men cannot be subjected to inspection and quarantine it is absurd to say no one should be isolated. If I find a prostitute diseased this morning and put her in the hospital I know that she will infect no man to-night. Thus in any event one source of contagion is eliminated and at least some good is accomplished.<sup>25</sup>

It seems impossible even for medical men to consider prostitution calmly and scientifically. At once there is raised a cry against "reeognition" or "legalizing." Some one says there must be no compromise with sin and no dickering with vice. Then some one else quotes from the Bible and says: "Her feet take hold on hell." That statement usually settles the matter and no one has a word to say in reply. Now I claim in this connection that we should minimize prostitution by an educational effort such as I have tried to outline and by economic measures which, among other things, increase the young girl's earning ca-

23. Denslow Lewis: Knowledge as a Factor in Venereal Prophylaxis, *Am. Jour. of Dermatology*, February, 1906.

24. Denslow Lewis: What Shall We Do with the Prostitute? *Am. Jour. of Dermatology*, November, 1907.

25. A Practical Lesson in Reglementation, *Jour. Am. Med. Assn.*, vol. xlvii, p. 1249.

pace and diminish her expenses. With the prostitute we should limit the spread of venereal disease by instruction in prophylaxis and by increasing our inadequate facilities for treatment.<sup>26</sup> These matters I have considered so often that I will not impose on your courtesy further.<sup>27</sup> Since, however, the time for action has arrived, it is but proper that the State Medical Society of Illinois should be put on record as advocating well recognized methods of prophylaxis now adopted by other medical organizations. For that reason I offer the following resolutions:

WHEREAS, We appreciate the rational crusade against the venereal plague which has been inaugurated in the United States and wish to co-operate in every way in our power in all efforts to limit disease, to diffuse scientific knowledge, and to increase general healthfulness and happiness; be it

*Resolved*, That we favor in the Illinois State Medical Society, the appointment of a standing committee on venereal prophylaxis, which shall direct an active and vigorous campaign against the spread of venereal diseases, and shall report annually to this society regarding legislative, educational, restrictive, preventive and therapeutic means best calculated to limit these diseases.

*Resolved*, That we recommend the appointment of a similar committee by every county medical society which, in harmony with the committee of the state society, shall act for the best interests of the community in reference to prophylaxis, as mature deliberation shall determine to be most desirable.

*Resolved*, That while deprecating the sensational and alarming statements promulgated by the mercenary charlatan, we favor an educational propaganda which shall teach the truth, and that we advise in every community increased facilities for gratuitous treatment of all venereal patients.

*Resolved*, That in lieu of all present laws against "obscene" literature, we favor that the young be safeguarded against corrupting information by laws which shall put the postal matter of the immature wholly within the control of parents or guardians. We favor such other proper legislation, having application only to the immature, which shall be so definite in meaning that there will be no doubt as to what is prohibited and which will not preclude any adult from acquiring full and complete information regarding all scientific subjects.

*Resolved*, That we recommend the amendment of all national and state laws so as to declare that no prohibition in them contained shall be deemed to apply to any serious discussion of sexual facts or conditions or of any branch of science dealing with sexuality, or of any sociologic, moral or religious questions connected therewith as against those who write or publish the same for circulation or exhibition in good faith among persons of legal age, and who, in good faith, deliver them by mail, express or otherwise, only to individuals of legal age.\*

#### ADDENDUM.

At the recent Atlantic City meeting of the American Medical Association there were presented in the Section on Hygiene and Sanitary Science papers which considered syphilis and gonorrhea as factors of depopulation and gonococcus infection as a cause of blindness, vulvovaginitis and arthritis. These three papers represented all reference to venereal prophylaxis at this meeting. The masterly oration on state medicine did not mention the subject. A Board of Public Instruction on Medical Subjects was created to arrange for the publication of suitable articles in pamphlet form for general distribution to the public, the organization, when possible, of public courses of lectures in cities which have medical schools and in other localities under the supervision of

26. Theodore Tuffier: The War Against the Venereal Diseases in France, Jour. Am. Med. Assn., vol. xlvii, p. 1249.

27. Denslow Lewis: The Social Evil, Buffalo Med. Jour., December, 1906.

\* The resolutions were adopted unanimously by the Joint Session of the Medical and Surgical Sections.



county medical societies and the dissemination by circular letters of matters of general moment to the medical profession.<sup>28</sup> This board is nominated by the president and is not composed of a definite number from certain sections as was originally suggested by the committee. No report was made on the resolutions, introduced a year ago at the Boston meeting, regarding the healthfulness of continence, the advisability of reporting venereal diseases and the duty of state boards of health to educate the public regarding venereal infection, so, by direction of the Section on Hygiene and Sanitary Science I called up the matter in the House of Delegates and, on motion of Dr. Craig of Pennsylvania, the resolutions were taken from the committee that had failed to consider them and referred to the committee on Hygiene and Public Health. This committee asked for a more detailed statement as to what is meant regarding "control of boards of health" in reference to venereal diseases; it favored an educational propaganda through proper channels, which recommendation, on motion of Dr. Frank Billings of Chicago, was approved; and also favored the resolution of Dr. Morrow regarding the healthfulness of continence, but, strange to say, the House of Delegates laid on the table the report of the committee on this resolution as well as the resolution itself. No action was taken on my resolution, introduced the first day of the meeting, which commended to all educators the advisability of teaching the truth regarding the healthfulness of continence, the physiology of the whole body and the possibility of innocent infection and which favored a modification of existing obscenity laws so that the young might be safeguarded against corrupting information, while pamphlets emanating from societies of recognized standing might go safely through the mails and be offered for sale without danger of arrest to the vendor.

#### DISCUSSION.

Dr. J. P. Simpson, of Palmer, Ill.:—Mr. President: The subject chosen by Dr. Lewis is of worldwide importance, and his paper seems to me one of the most timely that has been read at this meeting. Students of eugenics should find much to interest them in a paper like this, since their Utopian ideals can never be reached over a pathway made slippery with gonorrheal pus.

In the country districts we do not so often have to deal with luetic disease, and city practitioners are prone to believe that venereal disease, of all classes, is rare in the country. However, gonorrhea is very prevalent, and many a chaste young woman receives it as a wedding portion—along with the traditional cow and feather bed. For, as Professor Robinson used to observe: "The ubiquitous gonococcus is a sly rascal, and works in the dark." Often an orchitis has practically emasculated the husband, and chronic invalidism awaits the young wife. It thus vies with the abortionist as an agent of race suicide.

A great number, even in the medical profession, maintain that such a disagreeable subject should not be agitated; but that the evil should be left to work out its own salvation. This is practically the position assumed by Dr. Howard Kelly, who is so nearly right on a vast number of other subjects.

But should we not all view the matter broadly and seriously? I have three little daughters of my own, and my future responsibilities toward them does not permit me to think lightly of this matter, even if I were so inclined.

The youth of both sexes should have early and judicious enlightenment upon

28. Jour. Am. Med. Assn., vol. xlviii, p. 2046.

all that pertains to the reproductive phenomena. The total good that is to be derived from any human knowledge must be measured by the uses to which it is put and the results attained. To hide knowledge was the dictum of the dark ages. Publicity is the sure foe of evil. And it seems to me that the salvation of American motherhood rests upon a full understanding of all that science can bring to bear upon her case. The well-taught youth should be the cautious youth, for is it not true that fools often rush in where angels fear to tread? Certainly the sorest shame that ever comes to inflict itself upon misguided parents is the shame of a "lost" daughter.

And I fancy that the most crushing rebuke which ever comes to the ears of a shame-stricken mother is that from the lips of her ignorant and unfortunate daughter, when she cries out in the anguish of her first mental awakening: "Why did you not tell me all these things long ago?" For we should remember that in the great majority of these sad cases the weakest spot in their moral armor has been ignorance!

Dr. Edward H. Ochsner, of Chicago:—The subject that has been brought before us by Dr. Lewis is one that is well worthy of discussion by the members of this society. With reference to the importance of acquiring a knowledge of sexual hygiene, the ordinary farmer knows how to take care of his animals. He is taught at farmers' institutes how to take care of them. The ordinary high school graduate, the ordinary university graduate, and, I daresay, the ordinary medical graduate, knows absolutely nothing about sexual hygiene. I went through high school; I went through a university, and I went through a medical college, and yet I was never taught a single thing about sexual hygiene. And that is where the fault lies. We should begin, first, by teaching medical students sexual hygiene; then teach the university students sexual hygiene; then teach high school graduates sexual hygiene, and when this is done, you will have accomplished a great deal toward the education of the general public. The prostitute is a lost proposition. There is not one in a hundred who can be reformed. We must get them before they go beyond the period of redemption. You have got to educate the doctor, who in turn must educate the people in regard to acquiring knowledge with reference to sexual hygiene. There has been altogether too much energy wasted on the prostitute. I never saw one yet who was reformed. There may be a few here and there who have been reformed, but I have yet to see one.

Dr. Wm. H. Maley, of Galesburg:—I think Dr. Lewis is to be congratulated on the stand he has taken in reference to this subject. He is one of the pioneers and one of the most enthusiastic workers we have. True, he has been waging an uphill battle, but I think he has the right idea. If the physician is not the man to educate the people, who is? The physician himself, it is true, should be trained and educated in sexual hygiene, and if he receives that training, as he should, then he is the man who should be in touch with the home, with the members of the family and their sacred ties. What objection is there to a parent accompanying her daughter or son to the office of a physician? It is their duty, if they feel shy or backward about telling these things to their children, to consult physicians, and I believe, if the physician does his whole duty, he will see to it that the family for which he is the guardian is protected; that the children are protected, and it is his personal duty to do so. The people certainly look to physicians as being the men to teach and who ought to know what should be taught these children, and parents certainly ought to repose that confidence in their family physician, as he is the man who should teach them and show them what is right and what is wrong, and I think he is the man who can save them.

Dr. J. E. Allaben, of Rockford:—Just one remark in regard to what Dr. Ochsner has said. I would suggest that we reverse the order in which to commence education in regard to sexual hygiene. It seems to me, this education should begin in the high school, and be continued in the university and re-emphasized in the medical college. Young men and young women show a lack of knowledge in this respect before they get to the university or medical college. The general public is beginning to understand the necessity of teaching the ill-

effects of tobacco and alcohol, in the high schools, and these subjects are even of greater importance than those. The fact is, that many suffer from the evils of this malady on account of ignorance. Even physicians are slow in instructing members of their own family as to the real dangers of venereal disease. How many of us have heard young men say that an attack of gonorrhea is of no more consequence than a severe cold. What ignorance such people display when they makes these statements! They do not realize the far-reaching effects of a disease like gonorrhea—a disease that may affect the articulations of the body, the valves of the heart, or the meninges of the brain. Its effects are not always shown immediately, but may appear years afterwards. We need a campaign of education among young people before they suffer from the effects of these venereal diseases. Education along this line should begin in our high schools. It should be the business of the profession and the high school teacher to give information on this subject; to teach sexual hygiene and the dangers that may arise from contracting venereal disease.

Dr. M. Adles, of DuQuoin:—While this discussion has been going on, the thought occurred to me that this subject is more interesting and is more important to us as physicians, as guardians of the public health, than many people think. Recently I had an experience in the public school in our town of 8,000 inhabitants, which I will relate briefly. In this school the children are grouped together, and while they have pure air and plenty of water to drink, there is no place where they can clean themselves to be protected from any secretions they may have received from their schoolmates, and a teacher asked me in regard to one case, "Doctor, what is the matter with the little girl's eye?" A conjunctivitis had started the evening before that day, and the next day or morning the eye was so bad that the inflammation had extended to the cellular tissue, so that I could hardly tell what it was. The mother, however, continued to send the child to school. Undoubtedly the case was specific.

It seems to me, it is very essential that we should begin to teach the little ones; make them understand. If they know how to recite twenty or fifty little pieces, why are they not capable of remembering what is taught them regarding hygiene, etc.? I believe our duty commences in the school, where special knowledge on these subjects should be given to the little ones according to the capacity of their brain, and according to their ages. Our school teachers are not competent to do so, and if it can be done, medical men should devote their time, say two days a week, to spreading knowledge on this subject; according to the division of the classes the little children should receive instruction what to do. The doctor is so much more capable of doing this than the school teacher. Each class should receive a knowledge about sexual hygiene. It is very important to us, especially those who are fathers, to have the little ones grow up and educated along these lines. If these children were educated properly, they would not be so likely to receive the gonococcus in their eyes. We do not impart as much knowledge to the little ones on these subjects as we should. It is true, the school teachers can read up and talk to the children about these subjects; but as medical men in our respective communities, we should be a part and parcel of the schools, and, if necessary, should give instruction in regard to sexual hygiene.

Dr. Denslow Lewis, Chicago (closing the discussion):—By the unanimous adoption of the resolutions that I have presented, you have taken a great step in advance, and Illinois is placed in line with Washington and Michigan in favoring an active educational propaganda in the fight against the venereal plague. The technical mechanism of our state society organization requires, I presume, that the House of Delegates shall act on these resolutions before it can properly be said that they express the views of the society. I understand, however, that the House of Delegates had adjourned for this session, so that nothing further can now be done officially until next year. At that time, as I understand the methods in use, the chairman of either section, who is ex-officio a member of the House of Delegates, will be expected to present these resolutions which you have adopted so that they may receive not only official sanction by the deliberative body of this



society, but let us hope, some consistent action in addition, which may reach beyond the confines of this medical society. In the meantime, during the year that is to come, I beg to urge that each member of the society do something definite along the lines I have ventured to suggest.

It has been my privilege in the past year to speak on sexual hygiene and allied topics in churches in different states, and it has afforded me much pleasure to do so. Last month I spoke at St. Joseph, Mich., in the Methodist Church, and in the afternoon the pastor invited me to address a mothers' meeting, which I did. It was my first experience in speaking to ladies about venereal prophylaxis, and I confess, for a moment I was at a loss what to say. I recalled the fact that women nowadays are supposed to have the intelligence of men; they have the education of men, and certainly the mother is as interested in the child as the father. For that reason I spoke for an hour to the ladies very plainly. I told them of the sexual instinct, and pointed out the necessity of teaching children about it. The ladies asked many questions and seemed much interested. I discussed with them the subject of reproduction in reference to botany and zoology, calling their attention to the flower, the chick, the dog and the cat, and finally, referring to reproduction in man, I told them how they may teach the truth regarding sex and incidentally direct attention to the different needs of the child and the danger of any interference with normal growth as well as the danger of venereal infection.

In the evening the Methodist Church was filled, and I spoke to men for two hours, and they asked questions for another two hours, so that the session lasted from 8 to 12 o'clock. Wherever these meetings have been held (and there are others besides myself who are holding such meetings), there has been elicited the greatest interest. The people evince a desire to know the truth, and it must be told them by competent medical men who can speak with authority. It is not a matter of ignorance versus knowledge; it is a matter of gaining improper and injurious knowledge versus gaining right knowledge from the right source. We should speak plainly and forcibly regarding sexual matters, and very often, I trust, during the year that is to come, before definite action can be taken by the House of Delegates on these resolutions, all members of this society in their different homes, will bear in mind the duty that is imposed on them, as well as the privilege that is theirs, and will speak out freely regarding these matters which have so much to do with the welfare of humanity.

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## RAPID OSTEOCLASIS VERSUS OSTEOTOMY.

FRANK B. LUCAS, M.D.

PEORIA, ILL.

It is principally with reference to the correction of bone deformity that this paper is offered, and the bones of the lower extremity will form the particular subject of my remarks.

There are four particular deformities, whether consequent upon disease or injury, with which this paper deals, viz.: First, bow-leg; second, anterior bent tibia; third, twisted tibia; fourth, knock-knee. In addition there may exist a compound deformity of bow-leg and anterior-bent tibia, of bow-leg and twisted tibia, or a combination of all three deformities in the same leg. There is, in fact, a possibility of a combination in almost any manner of all four or any and all of the deformities mentioned, in the same patient, producing a grotesque and apparently puzzling condition, which must be carefully studied to determine the exact points of divergence from normal. An error of judgment in conclusion as to these points becomes of vital importance when an operation is done for correc-



tion. It is best to photograph or *x-ray* these cases and make a study of the picture before concluding the operative procedure. Lack of this precaution may account for the adverse opinions expressed by some authors of orthopedic surgery and their evident lack of knowledge as to technic will account for the balance of their objections.

In beginning I wish to give all credit to Dr. Wallace Blanchard of Chicago for my knowledge of the operation of rapid osteoclasis as done by him in over 700 cases of bow-legs, knock-knees, etc. Dr. Blanchard is probably the greatest expert and authority upon the use of the Grattan osteoclast in the entire world. No book on orthopedic surgery, except Royal Whitman's, gives due credit to rapid osteoclasis with the Grattan machine for knock-knee; most authors give but a few lines to this operation and no technic at all, and, in fact, "damn with faint praise" a method which in the hands of an able man has given the greatest satisfaction.

Bow-legs, as you know, are usually the result of rickets, as are also the saber-shaped and twisted tibias. These conditions are often associated with bends in the femur of like character. The femoral deformity may precede the tibial, in which case the bow-legs are called secondary deformities, and an explanation of this resulting condition will not be amiss. I will quote Blanchard's words: "The primary seat of the deformity, in a typical rachitic bow-leg, is in the lower third of the femur, and consists of an exaggeration of the normal out-bend. The resulting leverage usually produces an out-bend in the upper third of the tibia." Normally the shaft of the tibia forms an obtuse angle with the femoral shaft, greater in females owing to relative wider pelves—this angle becomes lost, of course, when the femoral out-bend is so exaggerated that the condylar surfaces change the angle to an obtuse of the exact opposite direction; then the child stands with feet wide apart and toes turned in or out as the tibias may be twisted in or out. Where a compensating lower tibial curve exists, then pronated or flat-foot results, otherwise the child walks on the outer portion of the foot somewhat after the manner of one with club-foot deformity. I shall present two cases to illustrate these conditions.

There is a difference of opinion between some orthopedists as to elongated inner or outer condyles, but a careful study of skiagraphs seems to indicate to me that most cases of bow-legs do not have any actual lengthening of condyles but only an apparent one due to the alteration in direction of the femoral shaft and plane of the condylar articular surfaces, and those cases of actual condylar lengthening are in part secondary to changes in direction of ligamentous traction. I base this latter opinion upon the fact that, as is well known to all, bone to which strong muscles of vigorous development are attached will proliferate under the traction until strong spurs and ridges are formed. Therefore, when the obtuse angle between the femur and tibia are changed to an opposite angle or long curve, there is constant and extreme traction exerted on the outer condyle at every step by the extreme lateral ligament. This traction is mainly caused by the superimposed body weight acting

on the upper end of a long curved limb tending to approximate the ends of the bow. The amount of bow-leg deformity resulting depends on the amount of walking done and upon the rapidity with which the bone hardens. There is, of course, an additional traction exerted by the group of internal ham-string muscles.

Anterior bent tibia is of various degrees and is usually associated with some degree of bow-legs. Twisted tibia is commonly associated with bow-legs and occasionally with anterior bends. Knock-knee of congenital occurrence may be associated with deformities in the tibia, especially near the head, but often exists alone and seems commonly due to an elongated internal condyle with lax internal lateral ligament. Knock-knee is an exaggeration of the obtuse angle above referred to; the body weight tends to increase it until the subject stands with the deformed knee resting against the sound knee, which produces in some cases a straight leg on the sound side or eventually a bow-leg of that heretofore sound limb. In some cases this bracing prevents double knock-knee only.

How shall cases of such nature be treated, and what has age to do with the mode of correction? The old way was to put iron braces on these children and to attempt by leverage through straps, pads and springs to gradually correct the deformity. That braces can overcome deformity when the bones are still soft goes without contradiction, but does any danger exist to the knee joint in using braces for bow-legs? Yes, it has been fully demonstrated by Blanchard, Ridlon and others that such braces do produce a loose or flail-like knee joint. Furthermore, braces are absolutely of no use when once the bone has grown hard, for no ordinary force can have one iota of effect on such bone, and where seeming results are effected it is only at the expense of a stretched lateral ligament, not a bend in the direction of correction. Then again, if no damage should result to the joint, this slow method of treatment is a tiresome and troublesome thing to parents, child and physician. Pressure sores appear, the braces require care and skill in adjustment and have to be used for one to three years to accomplish results. Life is too short and such antique methods must be relegated to the scrap heap in view of the fact that all this can be obviated.

What then shall be the treatment? Many authors advocate osteotomy in its various forms according to the needs of the case. For knock-knee McEwen's supra-condylar osteotomy. For bow-legs a plain (subcutaneous) osteotomy, or in some cases cuneiform osteotomy—the latter being also recommended for saber deformity of tibia. Some few authors very timidly advise osteoclasis, speaking their words as one ventures to use an uncommon tongue, but I will have more to say of this further on. Right here I will go back to the early treatment of bow-legs in the infant beginning to walk. These cases are subject to manual correction alone, by either the physician's or mother's hand—she being properly supervised. Firm pressure against the apex of deformity practiced several times daily and maintained several minutes each time, bends the soft bones to correction, and when persistently carried out will

suffice to cure these very early cases. Where the child is, say 2 years old and deformity is severe, manual correction by the surgeon before and after applying a long plaster splint from thigh to toes will do the work. These latter cases require a number of partial corrections and repeated plaster dressings and can be done without an anesthetic. It is simply a process of bending flexible bone. This procedure requires care to avoid pressure points and overstretching of lateral ligaments. In cases  $3\frac{1}{2}$  years and over the mode of correction depends upon how much hardening of bone has occurred; braces will not bend a hard bone, and these rickety bones become dense in fairly young children. In some cases the bones of a child 6 or 8 years old are as hard as those of an adult or even aged person. I was present to see a supra-condylar osteoclastis done on an Italian boy of 7 years whose femur snapped loudly under pressure almost without any bending. This dense bone unites apparently as well as any other, and, in fact, non-union in even senile bone is, as we know, a rarity where apposition is good.

How, then, let me ask, shall the best results, in the shortest time with the minimum of risk and pain to the patient as well as an increase of stature, be obtained? The above are surely sound principles of treatment for consideration, and the Grattan osteoclast, in the hands of one experienced in its use, will answer all these questions for us. It is an instrument weighing 38 pounds, of unyielding precision and simplicity, having the advantage over all other osteoclasts in these particulars. It makes a transverse fracture without splintering of bone or displacement of fractured ends, and stops where you stop it. I mean by this latter statement that it does not have any forward-spring motion when fracture or partial fracture occurs. The method used by Blanchard calls for rapid, always rapid, work. No more than eight seconds should be consumed in producing the desired fracture or bend, as the case may require. This transient pressure allows the soft tissues to immediately resume their normal color and tone practically and precludes necrosis.

The bones of the leg usually bend first and then fracture partially—as Blanchard calls it a  $\frac{4}{5}$  fracture—the machine is then quickly reversed, and in case the tibia is twisted the fracture is completed manually, and the lower fragment can be in- or out-twisted to any degree necessary. Fracture should be done against the apex of deformity, in most bow-leg cases, usually at the junction of upper and middle third of leg. The fibula in any case is not considered of any importance, and is fractured in various degrees in all cases, usually being the first to break under the pressure bar. It conforms to the general contour of the associated tibia in the result and unites separately. These fractures are invariably simple—the fractured ends remain in good apposition, the periosteum is not usually much disturbed, and in green stick fractures is not at all impaired in either bone.

After the child is fully anesthetized, this procedure need not occupy over thirty seconds for both legs, including changing the machine from one leg to the other; then manual completion to the desired degree will

take but ten to fifteen seconds, and we are ready to apply the plaster-of-Paris dressing.

The leg from thigh to toes should be bandaged with two or three thicknesses of cotton sheet wadding, cut three inches wide and made into a roller; this gives the operator the advantage of applying a smooth, even cushion of cotton of any desired thickness. The plaster bandages I use are made at my office by hand and of a special gauze torn four inches wide by five yards long, and the best sifted dental plaster is rubbed in evenly by hand so no lumps are present. I have these bandages freshly made for each case, and thereby avoid stale goods which are so often found in the prepared bandages bought at the stores. The first few turns of plaster bandage are put on loosely to allow for swelling of the leg, which occurs in some degree in each case. As soon as the requisite number of bandages are applied from toes to groin, then comes a very important feature in the technic. If the case is one of bow-legs, the assistant makes counter-pressure with the palm of the hand against the inside of the thigh, while the operator places one hand with palm against outside of the knee and with the other hand makes overcorrection by pres-

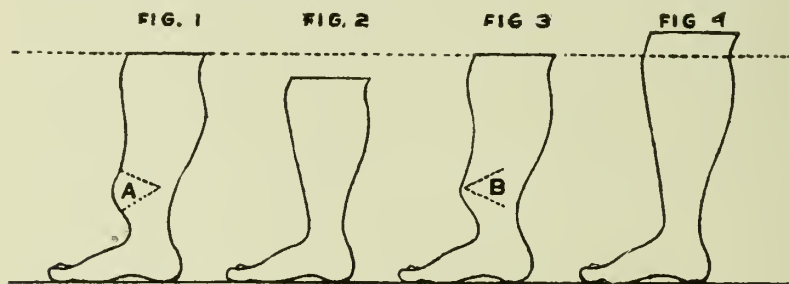


Fig. 1.—A leg with an anterior rachitic curve in the lower third of the tibia. A. The triangular wedge of bone to be removed by a cuneiform osteotomy for correction of the anterior deformity in the tibia.

Fig. 2.—The ultimate result of cuneiform osteotomy may be a straight leg, but with one inch of shortening.

Fig. 3.—A leg with anterior rachitic curve in the lower third of the tibia the same as in Figure 1. B. The triangular space to be opened up in the fracturing and straightening of the tibia by osteoclasis.

Fig. 4.—The ultimate result of osteoclasis in a perfectly straight leg and lengthened one inch.

(After Blanchard.)

sure of the lower fragment laterally, twisting to correct if needed. Overcorrection of the deformity is the watchword in this work, and every case of bow-legs should resemble knock-knees when the plaster has set. Likewise a knock-knee should resemble bow-legs when the plaster has set. To accomplish this the leg must be held in the overcorrected position until plaster is firm enough to hold, of course.

These casts may be left on four or five weeks. If any doubt exists as to the correction, they may be removed at the third or fourth week and the leg inspected, at which time any change of position may be effected by manual correction without an anesthetic. Union is only partial and the bone will bend at the seat of fracture much like a lead pipe; then the cast must be reapplied freshly and left on about two weeks. About



five weeks in plaster is a safe method when union is found firm, and the child may be allowed to walk. No braces are needed, and, while these children walk stiff-legged for a few days, owing to weakness at the knee-joint and a change of muscular tension, they soon acquire confidence and strength to walk and stand erect and normal.

In looking over the literature on correction of rachitic deformities, I do not find so much opposition by orthopedic authors to the use of the osteoclast for bow-leg correction alone as there is to its use for knock-knee work. Young, in his late work, gives several cuts from Blanchard's reprints on the treatment of knock-knee and bow-legs, but in operative

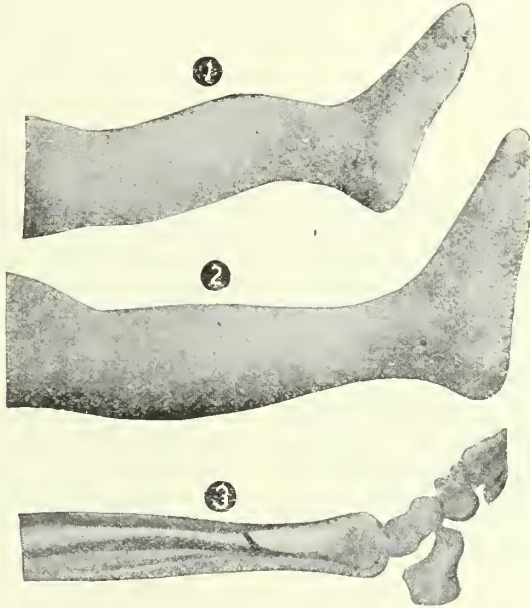


Fig. 1.—A horizontal view of a leg with an anterior curved tibia.

Fig. 2.—The same leg after straightening by rapid osteoclas and the opening up of a posterior triangular space in the tibia by which the tibia was lengthened just one inch.

Fig. 3.—Is from an x ray of the same leg two months after the correction, and shows a dark wedge of new bone filling the triangular space opened up in the posterior portion of the shaft of tibia in the straightening and lengthening of the leg.

(After Blanchard.)

treatment of knock-knee he—Young—places the procedure in the following order: First, tenotomy; second, forcible manual straightening; third, osteotomy, and, fourth, and lastly, osteoclas. He states, in conclusion, that “osteoclas is more applicable to the shaft of the bone, as in the correction of bow-legs, and is slightly more safe in this locality than osteotomy, whereas osteotomy is considered superior for the correction of genu-valgum.”

In espousing the cause of supra-condylar osteoclas in children, I can only reiterate the words of Blanchard, whom I have seen do this work. He has done all his knock-knee cases in children with the Grattan osteoclast for several years, and they who advise the open operation of osteotomy simply have not had the experience in doing rapid osteoclas.

One author advises to drive the fracture bar down slowly and carefully, so, as he says, to not contuse and lacerate the soft parts. Time and deliberation, causing long compression of soft tissues, is sure to result in unfortunate lesions and has no place in osteoclasis with the Grattan instrument. Doubtless some of these authors place all osteoclasis in one category, but if one will examine the mechanism of the Collins osteoclasis or any other which is rigged up with levers, pulleys, straps and pads he will conclude that no certainty of producing a fracture of the desired transverse variety at a particular point can be relied on with such a complex machine. The straps slip and stretch and the machine will overreach its object when fracture does occur; hence laceration of soft structures and periosteum may occur and even a compound fracture be made. The Grattan instrument has none of these uncertainties, being a bare steel, inflexible, accurate fracture maker.



Case 1. Fig. 1.—Note in-toes and moderate bow-legs.

Case 1. Fig. 2.—After second correction and picture taken 60 days after Figure 1.

In doing a supra-condylar osteoclasis, the fracture bar is driven against the femoral shaft on its inner lateral surface, usually about three or four inches above the condylar articulation, and probably one or two inches above the epiphyseal line. The lower counter-pressure bar being located four inches below its mate and each of the latter equal distance from fracture bar.

Usually correction is accomplished by osteocampsia, or bending of the shaft just where it starts to widen toward the condyles. Splintering of bone does not occur and epiphyseal separation has occurred but once in all of Blanchard's and Dr. Ridlon's cases. In placing the limb in plaster, the opposite pressure is brought to bear with the hands from the method used in bow-legs. Care should be exercised to avoid too great strain upon the external lateral ligament and, as has been said above, make the case look like bow-legs in plaster.

Now, if a simple fracture of the femoral shaft gives a better prognosis to the patient than a compound fracture does, why should the surgeon

deliberately produce a compound fracture when a simple one will answer the same purpose? Be it admitted that the osteotomy is done in a hospital under strict aseptic technique, even then the possibility of wound infection can not be eliminated; furthermore, the patient suffers pain to a much greater degree by osteotomy. Where lies the advantage? It has been fully demonstrated that the osteoclast does the work quicker and usually without destroying the continuity of bone—osteoclampsia being performed—and in ten minutes at the most the work is done, the cast applied and the patient returned to bed. It would seem that a selection of the open method in children is due to a lack of knowledge of a better, more rapid, less painful and safer procedure.

In the correction of anterior-bent or saber-shaped tibias, we have a condition that is not amenable to brace treatment at any stage. These various authors again display their lack of knowledge when they say,



Case 2. Fig. 1.—Note anterior as well as lateral bends.

Case 2. Fig. 2.—Showing plaster applied.

as does Dr. James E. Moore in his orthopedic surgery, that osteoclasis should not be used for this deformity, "because the sharp crest of the tibia is liable to cut through the skin." Blanehard answers this admirably when he says, "Plenty of time might be left for repentance if one should either try to break a saber over his knee with the knee pressure placed against the sharp edge, or should put the force of a fracturing bar of an osteoclast against the sharp crest of an anteriorly-bent tibia."

Our orthopedic authors recommend euneiform osteotomy in the removal of a wedge of bone by an open operation and a shortening of the tibia by about one inch. These children are already stunted and why shorten their stature an inch more when the Grattan can be used without infection dangers and with the result of an inch increase of stature, a difference between operations of two inches to the dwarfed child? How can this be done? The fracture bar is placed laterally opposite the apex of the deformity and not against its apex, and then the fracture is pro-

duced quickly and made complete manually; now, when correction is made, a triangular space is opened up posteriorly in the tibia, and hence the curve is straightened and the tibia is longer. This space fills in with callus and eventually bone. If the deformity was severe, this process of correction will leave a relatively short tendo Achillis. This may be demonstrated by holding the leg in a slightly overcorrected position and trying the foot for dorso-flexion, when, if this is found deficient, a tenotomy of the tendo Achilles is done and the plaster applied with the leg and foot held in correction until plaster is firm. This gives an excellent result and will increase stature one-half to one inch in ratio to the degree of deformity.

Osteotomy, in selected cases, is not to be decried and becomes the operation of necessity when the deformity is near the head of tibia in adolescents or adults or for vicious union in such patients. The osteoclast is not used above the location spoken of for knock-knee deformity



Case 2. Fig. 3.—Picture taken 48 days after Figure 1.

and osteotomy becomes the operation of necessity in the shaft of the femur or for subtrochanteric division, but I can not agree to its advantage in correction of children's deformities above referred to.

To sum up the advantages of osteoclasia versus osteotomy, we have the following: First, elimination of possible infection dangers from open incision method; second, rapidity of the operation; third, pain is not complained of once in twenty cases and is never severe; fourth, rapid union on account of slight periosteal disturbance; fifth, increase of stature after bow-legs and anterior-bent tibia correction. This latter consideration is not mentioned anywhere in all my authorities on orthopedic surgery, and seems to me well deserving of favorable mention.

In closing, I wish to report three cases in illustration: First case, bow-legs with in-twisted tibias; second, bow-legs with anterior-bent tibias,



and, third, knock-knee with deformity near the head of the tibia and lax internal ligament.

CASE 1.—J. H., female, age  $3\frac{1}{2}$  years, had a moderate degree of bowlegs with intwisted tibias of considerable degree. She walked with feet wide apart and toes turned in so she tripped and fell often. I did a rapid osteoclasis of the right leg just above the middle and of left leg slightly below the middle and placed them in considerable degree of over-correction; at the same time having out-twisted the lower fragments after manual completion of the fractures. The results at the end of four weeks on removing casts showed that an inward bend remained lower down in legs, which produced a pronation defect in the feet. One week later I did a  $\frac{4}{5}$  fracture in lower thirds and placed the legs in plaster again and found an excellent result on removing the casts at end of the fourth week. The picture presented was taken eight weeks after first osteoclasis.



Case 3. Fig. 1.—Feet are placed as close together as possible.



Case 3. Fig. 2.—After cuneiform osteotomy.

CASE 2.—A. H., female, age  $5\frac{1}{2}$  years; case was referred to me by Dr. J. J. L. Finnell of Peoria. This child presented a severe degree of bowlegs and anterior-bent tibias, especially in the right leg. The femurs presented some degree of out-bend as shown by photograph, and she walked with difficulty, feet spread very wide apart, and with a crouching wobbly, bull-dog like gait. Her feet impinged on the outer edges only, so her shoes were run over and showed wear on the outer part of upper leather even. She was conscious of her grotesque deformity and seldom went outside of the house or yard. I did a rapid osteoclasis very near the middle of middle third in each leg and put the legs up in a moderate degree of over-correction, exerting force in a forward and outward direction to correct

the compound deformity. Some amount of triangular space must have been opened up in the posterior tibial region especially in the right leg.

The picture shows the plaster dressing at the end of three weeks, when I removed it for inspection, and, without any alteration of the original position again put them up in a fresh plaster dressing as before. The limbs were in plaster five weeks and three days in all, when the casts were removed and she was allowed to walk. She walked into my office for the last picture just ten days after removal of the last casts, or forty-eight days from time of operation.

Neither of these children had any pain; Case 1 was cross and peevish for two or three days, but it is doubtful if she suffered anything more than twinges of pain during that time, while the latter and more severe case never once could be induced to acknowledge any pain whatever and allowed herself to be moved about at will by her nurses.

The latter case, A. H., had an overstretched external lateral ligament in each knee, and after the casts were dispensed with I found that adduction of the leg by passive motion followed by sudden abduction would make a distinct knocking sound. When she is walking now, however, the external condyle remains in contact with the tibial head, and experience shows that these lax, overstretched ligaments soon tighten up from the corrected position after osteoclasis, there being no further tension after such correction. This case did not have anterior-bends sufficient to warrant a tenotomy of the tendo-Achilles, as the foot could be well dorso-flexed in the corrected-leg position.

Her height on Oct. 25, 1906, was 39  $\frac{3}{16}$  inches.

Her height on Dec. 12, 1906, was 39  $\frac{7}{8}$  inches, a gain of 11/16 of an inch in stature.

CASE 3.—R. E., aged 13 years, male, height 5 feet 7  $\frac{1}{2}$  inches, weight 123 pounds, an unusually large boy for 13 years. His deformity was a severe knock-knee of the right limb and dated back about six years, having gradually grown worse from its incipency. His previous personal history showed that he had an acute osteomyelitis at fourth or fifth year, the tibia being the seat of disease in the greater portion of the shaft; this had been operated or drained by tube after free incision. Necrotic bone had sloughed out and sinuses had remained for about three to four years thereafter, when the wound ceased discharging, and the knock-knee deformity probably commenced. Braces were applied but failed to check the progress of deformity. He was taken to a local brace-maker in September, 1906, who saw that something unusual existed in the deformity, and he referred him to me for examination.

I made the following measurements: Length of right limb from anterior superior spine of ilium to malleolis, 38 inches; left limb from same points, 36  $\frac{1}{2}$  inches. Length of right leg from internal condyle to malleolus, 17  $\frac{1}{2}$  inches; left leg from same points, 16 inches. This demonstrated 1  $\frac{1}{2}$  inches of lengthening in the deformed leg over normal leg of opposite side. This excess of growth was due to irritation of the epiphysis from the nearby osteomyelitis, resulting in excessive proliferation of bone. Royal Whitman (page 555, 2d verse), in his latest work on orthopedic surgery, mentions this occurrence under secondary distortion in knock-knee.

The fibula in my case did not participate in this growth and hence remained relatively shorter, thereby holding firmly by its attachments to either end and causing the tibia to diverge toward that side as it grew in greater length. The point at which it angled outward was just below the epiphyseal line. One inch of this lengthening as shown by accurate measurements, was in the tibia, and one-half inch was due to separation of the inner condyle from head of tibia from traction on the lateral ligament.

The question arose as to what operative procedure should be instituted. Osteoclasia could not be considered for three reasons: 1, the deformity was near the epiphysis; 2, the case was in an overgrown adolescent; 3, danger would exist in fracturing the shaft through an old osteomyelitic area if correction be attempted lower down. Osteotomy should be done, but where? The old osteomyelitic bone, if disturbed, might start the process afresh, as was acknowledged by Blanchard when I consulted him about it, and if I did a supracondylar osteotomy, the leg would remain too long, and if a section of bone be removed in the lower end of femoral shaft, then the knee would be higher than its fellow, which would make a poor result for walking.

By careful examination just below the epiphysis of tibia, I concluded to chance finding enough healthy bone to remove a wedge and thereby shorten and correct the genuvalgum at the same time. This was done, a wedge of healthy bone with its base antero-internal was removed, the limb carried out forcibly until fracture of the outer shell occurred, and then by adducting the limb until the gap closed, the deformity was found to be a little over-corrected. The wound was closed with iodized catgut for periosteum, fascia and skin and a cigarette drain left in; the limb put up in plaster from thigh to toes in slight over-correction, a trap-door cut in plaster over incision for inspection and healing was uneventful. On removal of cast at end of four weeks, union was found fairly firm, but the internal lateral ligament was very lax; so I reapplied a cast and allowed him to walk on crutches. He now wears a brace with joints at knee for flexion and extension, but allowing no lateral motion. Under this protective measure the lax ligament will tighten up in six to nine months, when the brace can be discarded. His leg on the operated side is still about  $\frac{3}{4}$  to  $\frac{1}{2}$  inch longer than the left leg, but this is so accommodated in the pelvic tilt as not to be noticeable in walking and not at all when standing to the ordinary observer.

While I have detailed this case somewhat at length, yet it seems to me to have been one of such unusual occurrence as to deem it worthy of extended notice. I hope we in this locality may do our share toward placing osteoclasia on the high plane that it should occupy for the correction of the before-mentioned deformities in children, and that authors on orthopedic work will investigate the results obtained by the Grattan osteoclast and not continue to give the profession a wrong impression of this important advance in modern surgical procedures. Osteoclasia has its place over osteotomy, but cases must be carefully selected from a mechanical standpoint to determine which procedure is to be followed.

#### DISCUSSION.

Dr. Clifford U. Collins of Peoria:—It has been my good fortune to know something of what Dr. Lucas is doing. When I first heard of this method I was rather prejudiced against it, for the reason that I classed it with the blind surgical operations, such as the subcutaneous method for varicocele and the injection method for hernia. The instrument did not please me. It seemed to be fashioned after the style of the old angiotribe. It is a large heavy instrument and seemed rather ungainly. But it was my good fortune to see one of these cases operated on, and when I saw how with a few rapid turns of the wheel the bone was fractured exactly at the place he sought, and the limb straightened and put in plaster of Paris, and saw the patient a few weeks later with straight limbs, I was agreeably surprised. When this can be accomplished without incision, and without possibility of infection, it certainly has much to commend it to the practical man.

Dr. Lucas (closing the discussion):—There is one point to remember which is very important in connection with this method of treatment, and that is, if you have this work done, or do it yourself, you should guard against the production of flatfoot. In these cases, if you are not careful in applying the plaster cast

you will produce flatfoot. You must put the foot up in the position of varus, so that when the child walks it will walk in this way (illustrating). There is little tendency to knock-knee if the operator uses judgment in putting the leg up in moderate over-correction in the plaster.

## PARALYSIS OF THE LEGS IN CHILDREN.\*

EDWIN W. RYERSON, M.D.

Professor of Orthopedic Surgery, Chicago Polyclinic; Assistant Professor of Surgery, Rush Medical College; Orthopedic Surgeon to Cook County, St. Luke's, St. Elizabeth's and the Children's Memorial Hospitals.

### CHICAGO.

The two forms of paralysis most commonly seen in children are spastic, or cerebral, paralysis, usually caused by meningeal hemorrhage, and flaccid, or infantile spinal paralysis, caused by anterior poliomyelitis.

The cerebral hemorrhage causing the spastic paralysis may occur before or during the birth of the child, and in such cases is called congenital, or at any time subsequent to birth, being then termed acquired. A few cases of spastic paralysis are due to causes other than hemorrhage, the most important being embolism, thrombosis, porencephalus, hydrocephalus and chronic meningitis. In nearly all of the congenital cases, the paralysis is a paraplegia, affecting both legs. In most of the acquired cases we find a hemiplegia, an arm and leg of the same side being paralyzed. Rarely, a diplegia is seen, where both arms and both legs are affected. Mental disturbances of some degree are very frequently present, although strenuously denied by the parents in most instances. About 50 per cent. of the hemiplegics, 70 per cent. of the paraplegics, and 90 per cent. of the diplegics are more or less idiotic.

The typical picture of a paraplegic patient shows a spastic contraction of the adductors, the hamstrings and the large calf muscles; the thighs are drawn together so that the knees press against or overlap each other; the legs are strongly flexed on the thighs, and the feet point downward and perhaps inward. By slow and persistent pulling the legs can be partly straightened, but, on being released, immediately resume their former position. There is ankle-clonus, and exaggerated patellar reflexes, unless the contractions are too strong to allow them. There is no marked atrophy of the muscles and sensation is normal. Such a patient as this is doomed to a life of misery unless actively treated. It is true that most of them make a slight improvement without artificial aid, and some of them even learn to walk in some fashion or other, and it is in these milder cases that carefully planned exercises and passive motions will accomplish much in the education of the controlling centers and in the prevention of contractures. There is hardly a case, however, no matter how well educated and highly trained he may be, where we can not make a marked improvement by a simple and safe operation. If the contracting tendons be freely divided, and the legs straightened and held straight for a few weeks, not only is the spasticity practically cured, but also in many instances a marked improvement in the mental condition

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becomes evident. This latter seems to be due to the relief from the annoying and disabling contractions, which furnish a constant and nerve-fatiguing stimulus.

The operation for paraplegia is not difficult. The adductor tendons are put on the stretch by spreading the legs apart, and a small tenotome is inserted above the tendons close to the spine of the pubes. By careful sawing with the tenotome the adductor longus and brevis can be quite thoroughly divided, and with very little danger. Forceful stretching will tear any uncut fibers, and the legs can easily be abducted widely. Occasionally the adductor magnus offers resistance and must be cut at its insertion into the adductor tubercle on the inner side of the lower end of the femur just above the knee, as proposed first by E. H. Bradford. The hamstring tendons must now be divided, and the only safe way to do this is by open longitudinal incisions, one at the outer border of the popliteal space, for the biceps, and one at the inner border of the semi-tendinosus, semi-membranosus, and gracilis. These tendons are lifted on a director, and several inches of them exposed. It is by no means sufficient simply to divide these tendons, for they will unite again in a few weeks, and reproduce the contractures as soon as the casts are removed. At least three inches of each tendon must be cut out entirely, which is the quickest way, or else the divided end must be turned up towards the trunk and secured by a stitch to prevent regeneration. Hoffa and Gibney advise transforming these flexor tendons into extensors by passing them under the skin and sewing them into the upper border of the patella. I have performed this operation several times, and have not seen any better results than in simple excision of the tendons. It requires much more time in performance.

When the tendons have been excised, the leg is forcibly straightened, and the tendo Achillis divided subcutaneously with a tenotome. The incisions over the hamstrings are sewed up with horsehair, and all the wounds are dressed with dry sterile gauze. A plaster-of-Paris spica is applied over a thick padding of cotton or sheet wadding, the legs being widely abducted and straightened at the knees, with the feet at a right angle to the legs. This cast should be worn two months, and then massage and passive motions begun, and the child encouraged to attempt to walk. If the mental condition be even fair, the child will easily learn to walk in a few months.

Hemiplegic legs can be treated in the same way, while paralyzed arms need plastic lengthening of the individual tendons or else tendon transplantations. It would, of course, be the highest type of surgery to cure these hemorrhagic paralyses by cranial operation as soon after birth as possible. Cushing and others believe that this is a rational and practical idea, and it is certainly a most attractive one, but it has as yet received little attention.

#### ANTERIOR POLIOMYELITIS.

Anterior poliomyelitis, in contradistinction to cerebral paralysis, is a spinal-cord affection, undoubtedly of bacterial origin. The large motor ganglion cells in the anterior horns of the cord become degenerated, and

cause a flaccid paralysis of the muscles which they supply. At first many muscles are affected, and the condition is usually a complete paraplegia, or more rarely a diplegia, but in a short time some, at least, of these muscles regain their function. There is very seldom a perfect recovery, and in practically every case one or more of the leg muscles remains paralyzed. A marked atrophy of these muscles takes place, with loss of reflexes and with the electrical reaction of degeneration. The healthy muscles which act as the normal antagonists of the paralyzed ones soon begin to contract, by reason of their natural tonicity, and little by little the foot begins to be pulled away from the affected side. For instance, if the calf muscles be paralyzed, the tibialis anticus and the toe extensors pull the front of the foot backward, and the os calcis gradually drops into a vertical position. Likewise, if the peroneus muscles are paralyzed, the strong tibialis posticus pulls the foot around inwardly into a varus club-foot position.

It is obvious that, since the seat of the disease lies in the spinal cord, we can hardly expect much benefit from drugs. Ice-bags along the spine, counter-irritation, or wet cups have some theoretical possibility of lessening the congestion in the cord. It is very uncommon for an orthopedic surgeon to see a poliomyelitis during the acute attack, and I have, therefore, no new therapy to advise. Later on, in the course of the disease, strychnin, massage and electricity undoubtedly do good if persistently used. No operation more extensive than simple tenotomies should be attempted until at least two years have elapsed since the attack, because it is not uncommon for improvement to occur simultaneously at any time within that period. Light braces can be used to steady the foot and to delay the contractures, but our object must always be to render it possible for the patient to walk without braces, if this can be done.

The newest and most attractive idea in the treatment is the grafting of the diseased nerve into a healthy one. It has been conclusively shown by many operators that a paralyzed nerve can be united by end-to-end suture to a healthy nerve, and can regain function, but in the treatment of infantile paralysis we can not make end-to-end sutures, because we can not afford to sacrifice the good nerve. We can not even, with safety, split up a small splinter of the good nerve to make a partial end-to-end anastomosis, as advised by Murphy, because we can not identify the individual fibers, and we might cut off the very portion which we most wished to save. We are, therefore, obliged to make an incomplete operation, and simply to tease a little longitudinal slit into the healthy nerve with a dull needle, thus separating the fibers part way through the nerve. The cut end of the diseased nerve is then pushed into this slit and secured with a fine catgut suture through the two sides of the slit. The ends of the diseased nerve fibers are thus implanted into the substance of the healthy nerve, and do not project beyond it, and the experiments of Spitzzy have shown that in successful cases actual nerve filaments can be demonstrated connecting the two nerves.

I have performed six of these operations, which is a larger number than any individual operator has yet reported. One of these was done

in 1904, and was a failure. The internal popliteal nerve was inserted into the external popliteal. In 1905 I did a successful tendon transplantation on this patient. The second case was operated in 1905, went back to the country, and has not been heard from since. The next three were done in the summer of 1906, and have all three shown signs of increased tonicity in the paralyzed muscles, but only one has been tested electrically. This patient moved to New York, and was there examined by Dr. Henry L. Taylor, who reports that slight contractility has lately appeared in the toe flexors, supplied by the internal popliteal nerve which was inserted into the external popliteal.

The other two, while having as yet no voluntary power in the paralyzed muscles, nevertheless showed a marked improvement in the position of the foot and in the gait, and this improvement is slowly growing greater. I hope shortly to have an opportunity to make electrical tests upon them, which will be reported in detail in another paper upon this subject. It is evident, from these cases, that the regeneration takes place very slowly.

The sixth case was operated two months ago, the peroneal nerve being implanted in the anterior tibial. It is too recent to draw conclusions from. I must admit, therefore, that my results are not startlingly good, but I propose to keep on with this method of operating until the question is definitely settled, pro or con. The operation is certain to do no harm, if properly performed, and that is far more than can be said for any of the flap-splitting or end-to-end operations. I have plainly stated to the parents of all these patients, before operation, that no certain result could be predicted, and that very probably a tendon transplantation would have to be done later. Now, these nerve grafts can evidently only be done when there is a healthy nerve present, but is it necessary that this be a motor nerve? Would it be possible, for instance, to suture a paralyzed anterior tibial into a healthy musculo-cutaneous? This was suggested to me by Dr. M. L. Harris, and deserves experimentation. When the quadriceps extensor of the thigh is paralyzed, Hans Spitzzy proposes to suture the diseased anterior crural nerve end to end into the superficial obturator. He has done this successfully in dogs, but not as yet in the human being, so far as I know.

Tendon transplantation has had its rise and fall, and is now once more rising upward in the estimation of careful operators. An immense number of these operations have been done by men who did not know many of the little details which are all important in this work. The unsuccessful results obtained by them have done much to discredit an operation which, if properly performed, is of inestimable value. It is rarely suitable where more than one of the four muscle groups of the lower leg are paralyzed. It is never suitable when the gastrocnemius and soleus are paralyzed, because no combination of the smaller muscles can possibly replace these large calf muscles. By the four muscle groups I mean the flexors, the extensors, the adductors and the abductors of the foot.

Tendon grafting, then, should be restricted to those cases which display a paralysis limited to the peronei, the tibialis anticus or posticus, or to a combination of any two of these when the flexors and extensors of the toes are normal. Either the peroneus longus or the tibialis posticus can be replaced by splitting the tendo Achillis into two lateral halves and sewing the adjacent half into the paralyzed tendon. Lange prefers to weave silk threads into the healthy tendon, making it long enough to reach to the insertion of the paralyzed tendon, where it is passed through a hole bored in one of the tarsal bones. If the tibialis anticus be paralyzed, a fair substitute can be made by using the extensor proprius hallucis, which can be cut off at the base of the toe and passed bodily through a hole made in the scaphoid or internal cuneiform. If the toe extensors be also paralyzed, one of the peronei, or half of the tendo Achilles, can be passed over the front of the ankle and made to serve as an anterior tibial muscle. It is essential, however, in doing any kind of tendon transplantation, to obtain a considerable degree of tension in the healthy tendon and then to put the foot up in plaster in a position which will relax this tension as much as possible. The suturing must be strongly done by mattress sutures of chromic catgut or kangaroo tendon, and all attachments to bone must be prepared to resist considerable strain. If this tension be not insisted upon, the muscle bellies will reach their normal limits of contractility before they produce any effect upon the joint, and will have little or no actual power. The original deformity must always be thoroughly overcorrected before the tendon transplantation.

Simple tenotomies of contracting tendons should be avoided, as the tendons rapidly unite and the contraction recurs, and if the tenotomy be repeated many times the working length of the muscle becomes much shortened and perhaps unavailable for transplantation. Tenotomy is allowable, however, in the early stages of the disease, if great distortion has occurred, and it be desired to overcome this in order to allow of more complete regeneration of a muscle which may be only partially or temporarily paralyzed.

Paralysis of the quadriceps extensor can be partially compensated in cases where the sartorius remains normal by transferring the insertion of the sartorius into the upper border of the patella. A slanting, curved incision from the top of the patella downward and inward as far as the inner hamstring insertion will give ready access. In cases where tendon transplantations are unsuitable on account of too extensive paralysis, there are several alternatives. If the foot is simply a flail foot, with no marked distortions, a sheath splint made over a plaster cast of the foot and leg will make locomotion possible, though amputation and an artificial foot will be more useful.

If the gastrocnemius and soleus alone are paralyzed, an arthrodesis of the ankle will give excellent results. The joint is opened at the front of the fibula, and the articular cartilage is removed from the tibia, fibula and astragalo-calcaneal articulations. The plantar fascia is tenotomized, and the os calcis straightened up as nearly as possible to the horizontal. The foot is put up in a plaster-of-Paris cast, and retained there for at



least three months. Walking should not be allowed during the first month, as it may defeat the fibrous ankylosis which we desire, and cause too movable a joint. It is sometimes of advantage to remove the astragalus and push the tibia and fibula forward nearer to the middle of the foot, as advised by Whitman.

Lack of space and time prevent any reference to the other forms of paralysis, such as progressive muscular dystrophy, Friedreich's ataxia, etc.

#### DISCUSSION.

Dr. Frank B. Lucas of Peoria:—I have been very much interested in this work of the transplantation of tendons, and shall enjoy reading Dr. Ryerson's paper in detail when it is published. I have the case of a boy whose folks had taken very little care of him. He had rheumatoid arthritis, which caused severe contractions, so that the heel of the right foot is up almost against the buttocks. He has ankylosis of both knees and elbows. One arm is straight while the other is slightly flexed. His constitutional condition is fair. The question has occurred to me whether I can straighten the limbs. The case is of great interest because of this paper on paralytic deformities, with reference to tendon surgery.

Recently, I saw a case of partial paralysis of the anterior group of muscles of the leg. The patient was a child, 8 years of age. She has a slight foot-drop, but there is no dorsal flexion beyond a right angle. She has very little toe-drop, but she has some. There was not entire paralysis of the anterior group of muscles, and I should say about 60 or 70 per cent. The question in my mind is whether tenotomy of the tendo Achillis and placing the foot above a right angle, with 75 degrees dorsal flexion, would be advisable in that case.

Dr. Frederick Mueller of Chicago:—With reference to the paper read by Dr. Ryerson I wish to say that a very pronounced difference exists in the reflexes in cases of paraplegia and in those of infantile paralysis. In cases of spastic paralysis we find the reflexes are increased, whereas in those cases due to infantile paralysis the reflexes are lowered, and sometimes they disappear altogether. In cases of spastic paraplegia we have defective speech, increased salivation and strabismus. These are found quite often in most cases of spastic paraplegia.

So far as operation is concerned, I have been unable to see any great favorable influence produced upon patients, although I have done pretty nearly 200 of these operations. Improvement in the mental capacity of the patient is noticeable if considerable time is allowed to elapse after the operation, say for a year or two years, or even more than that. I think much of the improvement which the patient would naturally make should be credited to that regardless of whether an operation was performed or not.

Dr. Ryerson advocates open tenotomies. Open tenotomy is far superior to subcutaneous tenotomy, as the surgeon can see what he is doing. If, however, a subcutaneous tenotomy is made by a skilled hand, there is no danger involved by so doing. Moreover, if subcutaneous tenotomy is performed and the contracted joints are redressed in a thorough way, any relapse can be safely excluded.

So far as infantile paralysis is concerned, I think the application of a brace over a plaster-of-Paris cast is advisable, in order to promote the reduction of contractures and angular joints. In this way we are able to save the patient some trouble for the future.

So far as the different methods of tension or nerve transplantation are concerned, in cases of infantile paralysis I think tendon transplantations give good results, provided one selects his cases. The most favorable cases are those in which one group of muscles is paralyzed. In the treatment of paralytic pes equino-varus, with transplantation we are able to exclude any relapse after the redressment of the foot is made, and such patients may get a perfectly useful foot by tendon transplantation.

Dr. Edward S. Murphy of Dixon:—I would like to ask the essayist (Dr. Ryerson) when he recommends doing transplantation.

I had the case of a man, aged 23, whom I relieved of club-foot, obtained a good result, so that the man was able to walk, and as he was a farmer he was never able to do any work on the farm that required walking before I operated on him. Prior to that time he had to operate riding machinery. I have heard a good deal about advising against the use of that treatment, especially during early life, and I would like to have that question answered.

Dr. John B. Murphy of Chicago:—I did not expect to be invited to take part in this discussion; for that reason I permitted myself to be called out of the room and did not hear much of the paper.

The elements, it seems to me, that have been lost sight of in connection with definitive results in anterior poliomyelitis are: First, that when the trophic cell body is destroyed the axon is permanently ruined and there is no automatic power of restoration. Second, the degree of primary paralysis bears very little relation to the degree of complete axonal destruction in the nerve or ganglionic cell (neuron) destruction in the cord. There is an enormous reparative potency in the paralyzed zone which is overlooked in managing the therapeutics or treatment of these cases immediately after acute anterior poliomyelitis. Third, the element of degeneration and regeneration of the muscles. We have been taught for a long time that in anterior poliomyelitis the trophic changes are such as to completely destroy the muscle cells; but that it not true, as they are always capable of regeneration. There is an atrophy, but the nucleus of the cell is still potent, and if we supply to this a new living axon by transplantation of the nerve, we will secure restoration of function in these muscles. Fourth, the element of muscle tension equalization, of balancing muscle power, where we do nerve transplantation, a synchronous tendon transplantation elongation or shortening, is as important in restoration of function of the limb as the primary nerve operation. If we have contraction of the flexors we perform an open tenoplasty, whether the contracted tendon is elongated in a plastic way or by division; the corresponding opposing tendon should be shortened at the same time. True, they again contract, but they do so slowly, and the tendon, which was the seat of contracture, is at a decided disadvantage where shortening of the opposing tendon is done, as the fulcrum is changed and the power is equalized. The same principle obtains in the transposition of a nerve; that is, we may temporarily or completely paralyze one set to restore another, as in the arm, where one may transplant the ulnar proximal end on to the musculo-spiral distal end, because you can dispense with the ulnar function without materially impairing the use of the hand, while we can not dispense with the musculo-spiral nerve without great impairment of hand function. With proper mechanic, electric and hygienic treatment, the paralysis of anterior poliomyelitis will improve for a period of three years after the attack. There is no time limit known when nerve transplantation does not offer hope, as I have shown by my cases operated and reported in the April number of *Surgery, Gynecology and Obstetrics*.

Dr. Ryerson (closing the discussion):—With reference to the remarks made by Dr. Murphy, I do not think he was present when I stated that no operation should ever be done in cases of infantile paralysis until two years has elapsed since the attack, and preferably a longer time. I have seen, at least, six cases where after two years a little improvement has taken place, and where up to two years definite improvement took place all the time.

With regard to the possibility of equalizing the nerve power in the nerves, that is certainly most attractive, and if we could select the proper fibers to cut, so that the nerves which we particularly wanted to preserve would not be cut and some less important ones might be cut, it would be a good thing to do. But we can not by means of a fine needle electrode absolutely identify each successive fiber of the nerve until after they are cut, because the nerve offers a conducting medium. If you apply a stimulus to one isolated piece of copper wire, the conductivity of the whole will take place as if there was one single copper wire. The

same thing holds true with regard to the nerves unless they are separated and taken up.

Dr. Mueller referred to my advocating open tenotomies. He misunderstood me. I believe it is of the greatest importance to cut at least three inches of these muscles, and it is not a tenotomy; it is an exsection of the tendons in the adductors of the heel. I do nothing but subcutaneous tenotomies.

Dr. Mueller spoke about the difference in the reflexes in spastic paralysis and in infantile paralysis. I treated of that in my paper, but did not have time to read what I had written in regard to the differential diagnosis of the two conditions.

With reference to the case Dr. Lucas speaks of, I should think unquestionably the thing to do would be to transplant the two extensors of the toes, the extensor proprius hallucis, and the common extensor of the toe, into a hole bored in the bone, preferably in the scaphoid, and, after cutting the tendo Achillis, put up the foot in a flexed position and leave it there for several months, at the end of which time the chances are that some power will have been restored to the anterior tibia itself. A good way is to cut it off from its insertion, and the transplantation of two small muscles will help in the tarsal flexion.

As to the other point, I do not believe in doing tendon transplantation in little children, even if it is a long time after the attack. I put them up in some form of apparatus until several years have elapsed, until we begin to train them. I have done this operation in adult cases, and the results are just as good and even better than in children, because the adults can be taught to make voluntary effort more easily than children can.

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## SCOPOLAMIN AND MORPHIN AS A PRELIMINARY TO GENERAL ANESTHESIA.\*

CLIFFORD U. COLLINS, M.D.

PEORIA, ILL.

Man is constantly striving toward perfection. The discovery of the anesthetic properties of ether in 1846 and chloroform in 1847 marked a great advance in the practice of surgery, and the improvement over old conditions was all that was claimed by Dr. Oliver Wendell Holmes when he said, "The knife is searching for the disease, the pulleys are dragging back dislocated limbs. Nature herself is working out the primal curse which doomed the tenderest of her creatures to the sharpest of her trials; but the fierce extremity of suffering has been steeped in the waters of forgetfulness, and the deepest furrow in the knotted brow of agony has been smoothed forever."

For years the question was discussed as to whether anesthetics should be used or not, particularly in obstetrical cases during the pangs of labor. But the claims of suffering humanity finally prevailed and the use of anesthetics became general. Then for a great many years the relative dangers of chloroform and ether were discussed; but lately the increasing large number of ether anesthetics without a death by the method used by Miss Alice Magaw<sup>1</sup> of Rochester, Minn., has come very near settling this controversy. But the study of the relative safety of the general anesthetics brought out the fact that, while general anesthesia was a

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1. Surgery, Gynecology and Obstetrics, December, 1906.

great step in advance, it was still far from perfect and there were several things about it that could be improved. The irritating effect of ether on the respiratory tracts and kidneys has been known for some time, while investigations by Bevan and Favill<sup>2</sup> show that chloroform can produce a destructive effect on the cells of the liver and kidneys. It is not yet known just how ether and chloroform produce anesthesia, and the profession will be working more or less in the dark without being able to avoid possible unknown dangers until this has been discovered.

There has been no method of administering general anesthesia yet devised which measures the dosage of anesthetic which each patient receives in a given time. We can tell how much is used at each anesthesia, but we can not tell how much has escaped into the atmosphere and how much is actually absorbed by the patient.

The preliminary stage of anesthesia just before unconsciousness is reached gives some very unpleasant sensations to the patient. A large number of patients who have had previous experiences dread the anesthetic more than the operation. While a great deal of this unpleasantness, such as the feeling of strangling or smothering, can be avoided by a skilful, experienced anesthetist, the natural fear and aversion to passing through unknown dangers, unconscious and helpless, can not be avoided. This feeling is so well recognized that some sudden deaths in the beginning of chloroform anesthesia have been attributed to fear and fright.

While the general anesthesia relieves the pain of the immediate operation, its effect is more or less evanescent and depends upon its constant administration. The outraged and insulted sensory nerves continue their protest for some time after the operation, and the stopping of the general anesthetic at the close of the operation allows the patient to feel the smarting, burning pain of the injured tissues which lasts for a few hours. Following the administration of chloroform or ether there is usually more or less vomiting. In the case of an abdominal operation the vomiting makes the abdominal muscles pull on the incision and adds much to the suffering of the patient. In any case, it adds to the discomfort and postpones the giving of fluids by the mouth.

These dangers and imperfections made some members of the profession seek for other means of producing anesthesia. Local anesthesia has been extensively used for a great many operations, but has its limitations. Spinal anesthesia has been experimented with, but it also has definite obvious limitations as well as dangers of its own. In 1900 Schneiderlin<sup>3</sup> brought out the method of producing anesthesia by combining scopolamin and morphin. Like any new method or combination of drugs, a great deal of work had to be done with it before the best combination was found. In doing this it was sometimes found that enough of the combination had not been given, and chloroform or ether was used in addition. It was soon noticed that if a preliminary injection of scopolamin and morphin had been given it took much less ether or chloroform to produce complete anesthesia, and in this way the great benefits of

2. Jour. A. M. A., September 2, 1905.

3. Aertz. Mittell aus und für Baden, May, 1905.



scopolamin and morphin as a preliminary to general anesthesia were discovered. It is not my intention to review the entire literature on this subject. It is already too voluminous to be reviewed in a paper of this kind. The most prominent articles which first appeared in the literature of this country were by Emil Ries<sup>4</sup> of Chicago and Major G. Seelig<sup>4</sup> of St. Louis. They reviewed the literature up to that time and gave the results of their own experience. Ries used the combination as a general anesthetic by dividing 1/50 grain of scopolamin and 1/2 grain of morphin into three doses and giving one dose 2 1/2 hours before, the second dose 1 1/2 hours before and the third dose 1/2 hour before the operation, and Seelig used it simply as a preliminary to general anesthesia, and recommended a dose of scopolamin, 1/100 grain, and morphin, 1/6 grain, injected one-half hour before the administration of the general anesthetic.

After these two papers were published, the usual discussion in the literature followed, with arguments for and against the new method. Some reporters seemed to think that if one of their patients died from any cause whatsoever after the administration of the scopolamin-morphin combination it should be blamed for the death. For instance, one physician<sup>5</sup> reports a death and gives the cause as cerebral anemia which was produced by:

"1. The effect of trional. . . .

"2. The effect of pelvic engorgement incident to the on-coming menstruation [the patient flowed freely the night before].

"3. The effect of the drugs [scopolamin and morphin] administered to a patient specially predisposed to it."

And then the report was headed, "Death Following Scopolamin-Morphin Injection!" Another member of the profession<sup>6</sup> reported suppression of the urine following a prostatectomy, and then attributed the anuria to the preliminary injection of scopolamin and morphin, when it is well known that anuria followed operations on the genito-urinary tract long before the scopolamin-morphin combination was ever thought of.

Probably the most conspicuous recent article on this subject was by Horatio C. Wood, Jr.,<sup>7</sup> of Philadelphia. In this article he claims to have reviewed the literature and found one death in 221 anesthetics. He claims that there were 23 deaths in 1,988 cases reported, but he thinks that in only nine cases should the death be attributed to the anesthetic. He gives no reference to the literature, so no one can go over the same ground and consider the justness of his conclusions. He does not tell the quantity administered in any of the cases nor the method of administration. He says that in 69 per cent. of the cases the anesthesia was unsatisfactory, when the percentage, according to his own figures, is only 43 per cent. I call attention to these inaccuracies in Dr. Wood's statements, because it is possible that some of these inaccuracies might extend to his conclusions. He winds up with the rather astonishing statement

4. *Annals of Surgery*, August, 1905.

5. *The Lancet-Clinic*, November 18, 1905.

6. *St. Louis Medical Review*, February 16, 1907.

7. *American Medicine*, December, 1906.

that: "We think it must be either a very bold or a very ignorant surgeon who will persist in its use."

Now, I am perfectly willing to pay very good attention when a pharmacologist tries to tell me that scopolamin and hyoscin are identically the same, because I feel that his opinion on that question is worthy of consideration. But when a pharmacologist assumes to tell me that as a surgeon I am either bold or ignorant if I pursue a certain course I must confess that I think he is outside of his province. However, in this paper I am not discussing the scopolamin and morphin combination as a general anesthetic. Wood also says that the claim that the danger from ether or chloroform is diminished by the preliminary use of scopolamin and morphin is by no means proved or even probable, and goes on and says his reason for saying this is because he made some experiments on dogs in which ether was used as a general anesthetic with a preliminary injection of morphin alone, without either scopolamin or hyoscin. Comment is unnecessary.

It is only by comparing of experiments and discussion that the truth will be brought out; therefore, that which follows will be the relation of a personal experience with the method.

In January, 1905, I visited the clinic of Emil Ries at the Postgraduate School in Chicago and saw him operate on a ventral hernia under the scopolamin-morphin anesthesia on a patient who had a goiter removed just a week before under the same anesthesia. I went home and concluded to use the scopolamin and morphin combination as a general anesthetic on some patient where I had reason to fear a general anesthesia of ether or chloroform. I think that this is probably the reason for some of the deaths reported following its use. It was probably used in many cases on very sick patients where there was reason to fear the administration of ether or chloroform. In June, 1905, I had a patient with hallux valgus, on whom I determined to remove the head of the first metatarsal bone. The patient was 56 years old and weighed more than three hundred pounds, so I was afraid of ether or chloroform in her case and, therefore, determined to give the scopolamin-morphin combination a trial. One-half grain of morphin and one-fiftieth grain of scopolamin were divided into three doses and one dose was injected hypodermically  $2\frac{1}{2}$  hours, one  $1\frac{1}{2}$  hours, and the third  $\frac{1}{2}$  hour before the operation, as recommended by Ries. The anesthesia was all that was claimed for it by its friends. The incision was made and the head of the bone removed without the aid of ether or chloroform. She was awake by evening and ate her supper without nausea. She had no recollection of being in the operating room. I noted, however, one disadvantage, and that was that every movement of the operator had to be made slowly as in local anesthesia, or the patient would be aroused.

As I had spent some time for several months in developing a certain amount of rapidity in my work in the belief that a rapid operation, provided that it was well done, was productive of less shock and a more uneventful convalescence than one more slowly done, this disadvantage had considerable weight with me, and I did not use the combination as a

general anesthetic any more. When the article of M. G. Seelig appeared, advocating the small dose of scopolamin, 1/100 grain, and morphin, 1/6 grain, as a preliminary to general anesthesia, I began using it again in this way in October, 1905. The nurses on the floors were not told of the change in the usual order of things, but before many days they began to ask what we were doing in the operating room that made it so much easier to care for the patients immediately following the operations. They noticed that the patients slept for several hours after the operation and there was a marked diminishing of the postoperative vomiting.

In December, 1905, I was forced to undergo an operation myself, and most of you probably know how averse a surgeon usually is to taking his own treatment. By that time I had used the preliminary injection of scopolamin and morphin in about twenty-five cases, and the comfort of the patients had seemingly been greatly increased. I made up my mind that if there was anything that would rob an operation of its unpleasant features I certainly wanted it used on me. I had taken anesthetics before and knew by experience what to expect. I was given the usual dose and in a few minutes felt very sleepy. I was not conscious of any drug action, but felt irresistibly sleepy. I was sound asleep before they came to take me to the operating room, and only vaguely knew that I was being aroused and taken upstairs. I took four inhalations of ether and was asleep once more. I slept 4½ hours after the operation was completed and then awoke for a few minutes and went to sleep again for another hour. I vomited a little twice that day and that was all. When I recovered I firmly resolved that my patients should have the benefit of this method of anesthesia which had added so much to my comfort. This resolve has been carried out and it has now been used in 350 cases.

Scopolamin, 1/100 grain, and morphin, 1/6 grain, was usually given hypodermically one hour before administering the general anesthetic, this interval of one hour giving us better results than the one-half hour recommended by Seelig. At first, chloroform was used following the preliminary, because some of the early users<sup>8</sup> of scopolamin advised chloroform instead of ether, claiming that ether caused congestion of the pulmonary apparatus, which, with the vasodilation produced by the scopolamin, increased the danger of pulmonary congestion and edema of the lung. For several months we have followed the preliminary, by ether administered by the open method and have not encountered these suggested dangers.

In this series there were eight deaths, but not one of them could be attributed to the scopolamin and morphin. We now do not recognize any contra-indications to the preliminary injection, and it is given to each patient as a routine measure. Fifteen patients were between 60 and 70 years old, six were between 70 and 80, and four were more than 80 years old. Seven were between 6 and 10 years old. We gave the children the usual dose. Children are more easily frightened, and the usual amount seemed necessary to produce the desired tranquillity. In two of the patients the hemoglobin was reduced to between

8. *International Clinics*, vol. II, 15th series.

40 and 50 per cent. because of uterine hemorrhages. When there was any reason that made it desirable to use a very small amount of the general anesthetic, two of the preliminary doses were given, the first one and one-half hours before the operation and the second one-half hour before. In this way 1/50 grain of scopolamin and 1/3 grain of morphin were administered. This was done in one case of goiter, and in another case of hypertrophied prostate in which the man was eighty years old and his pulse was irregular. These patients had no recollection of being taken to the operating room, and it was difficult to make them believe that they had been there and the operation was over. In this group were a number of patients who had taken anesthetics before and, without an exception, they all noticed the marked improvement of this method over the former anesthetics.

The advantages derived from the method are:

1. The tranquil drowsy state of mind which it produces in the patient before the general anesthetic is administered. If it did nothing else this should be sufficient to give it a permanent place in the anesthesia of the future. The patient feels an irresistible tendency to close his eyes and sleep. The feeling is not like the stupefying action of a drug, but is very much like the natural tendency to sleep that comes on at bedtime. R. H. M. Dawbarn,<sup>9</sup> in discussing anesthesia, writes of the desirableness of anesthetizing a child while it is asleep in the following language: "It makes an astonishing difference in the amount of chloroform required whether this safest of plans (and the most neglected) is used, or whether, instead, the frightened child is awake, struggling and screaming." By the preliminary use of scopolamin and morphin the tranquil condition of sleep is produced in any patient, without regard to age, with the same desirable results.

2. A great deal less of the general anesthetic is required. It can not be denied that chloroform and ether have distinct dangers, and it is probable that with the administration of a lessened amount the dangers will be correspondingly lessened. For this reason a patient is safer in the hands of an inexperienced anesthetist with the preliminary injection than without it, although an experienced anesthetist should always be obtained when possible.

3. Scopolamin produces a dryness of the throat which is very desirable when ether is administered, because it prevents the flow of mucus usually produced by the ether and lessens the dangers of aspiration of this mucus into the respiratory tracts.

4. The patient usually sleeps for three or four hours after the operation. The smarting, burning pain of the incision has usually ceased before the patient awakes.

5. The postoperative vomiting is markedly lessened. About one patient in twenty will vomit several times afterward, but the remainder will be spared this painful, distressing complication.

<sup>9</sup> Jour. A. M. A., April 21, 1906.



The only disadvantage is the varying effect of the single dose on the patients. A few patients will not get the full beneficial effects of the preliminary, although all are benefited to some degree.

#### DISCUSSION.

Dr. Channing W. Barrett of Chicago:—I would like to say a few words in regard to this form of anesthesia in which I have had some experience.

In November of last year I began to use the hyoscine-morphine-cactin preparation, and it gave such good results that I have been encouraged to continue its use. There are some points, however, in connection with its use which should be remembered. When I began to use it the anesthetizer, who was experienced in giving anesthetics, found that it interfered with and confused the reflexes, but not to the extent that morphine alone does. A little experience gained, and the chloroform anesthesia becomes very easy with the preliminary hyoscine-morphine-cactin.

We found, too, that in some cases the heart's action was decidedly increased. This was noticed particularly in some cases, where the patient was carried from the bed, after having taken the preliminary anesthetic there, to the operating room. Her pulse would be normal while she was lying in bed, but after reaching the operating room it was in one case 140, in another 120, and others about 108 or 110. But the noticeable thing was the pulse grew slower and slower as the operation progressed, so that it finally became normal. Again, it was noticed that the patients had an easier time after the operation than they do after chloroform and ether.

One of the first patients to whom this anesthetic was given was operated upon for gallstones. The abdomen was opened without any other anesthetic having been given. When I began to make traction on the gall bladder she aroused a little, and then a few drops of chloroform were given. She had a very comfortable convalescence, sleeping a part of the afternoon and night following the operation. She could at any time be aroused and was comfortable when awake. In another case a suprapubic cystotomy was done with no other anesthesia until traction was made upon the bladder, when straining enough occurred to push the peritoneum down in the way. A small amount of chloroform was then given.

In practically all cases in which we have administered this anesthetic, we have been able to put the patients on the operating table, scrub the operative field, and be ready to operate on them before administering any other anesthetic; then, just a few drops of chloroform would put the patient under ready for the operation. In some cases I have been able to proceed with the operation without at any time the aid of further anesthesia, noticeably in those cases in which we have done vaginal instead of abdominal work. In some cases we have cleaned out the uterus after abortion and have been able to do the work satisfactorily without administering any other anesthetic. In one case the desirability of this form of anesthesia was particularly noticeable. The patient was brought to the hospital at night; we were unable to make a blood examination then. She had lost much blood from a fibroid; but we were prepared to operate the next morning. A blood count was made which showed 40 per cent. hemoglobin; a red corpuscle count of 2,800,000, and we did not wish to do a radical operation under those circumstances. I told the attending physician that I thought it would be well, while the patient was still under the anesthetic, to clean out the diseased endometrium, which was causing the hemorrhage, and we would have a better chance to rebuild the patient than we would have if we left the diseased endometrium. Without further anesthesia, we curetted the uterus, and she came back a few weeks later sufficiently recuperated for a radical operation.

In another case, in which there was a four months' pregnancy, with incarcerated uterus, we wanted to return the uterus to position. All efforts under general anesthesia failed. The patient was given hyoscine-morphine-cactin injection with very little other anesthesia; the abdomen was opened; a pus tube removed; adhesions separated; the uterus brought forward, the patient continuing with her

pregnancy, which is now seven months along. I have been well pleased with its use in obstetrical cases.

As to the amount of anesthesia given, when the pulse showed a tendency to become rapid in some cases instead of giving  $\frac{1}{4}$  gr. of morphin, 1/100 gr. hyoscin and 1/67 gr. cactin, and repeating that dose one hour before operation, I gave one tablet of  $\frac{1}{4}$  gr. morphin, 1/100 gr. hyoscin, and 1/67 gr. cactin, two hours before operation, and one hour before the operation one-half tablet, and half an hour before the operation another one-half tablet, if the pulse was in good condition and the patient wakeful. I have not used injections, as recommended by Lanphear.

Dr. James W. Hamilton of Mount Vernon:—One of my objects in coming to this meeting was to hear this paper. We have been conducting a series of experiments on anesthesia. I will say here, that the average doctor knows more about the technic of hysterectomy than he does about the technic of an anesthetic. That is my experience.

Last November I prepared a paper on this subject and read it before the Southern Illinois Medical Association, and up to that time the best statistics I could find were that there had been twelve deaths from scopolamin-morphin anesthesia; but we got very little information as to the real cause or causes of death. Last year, up to November, we had tried this method of anesthesia in 67 operative cases, three-quarters of them being laparotomies. The youngest patient we tried it on was 14 months old; the oldest one had passed the eightieth birthday. The child had a tumor in the supraclavicular region about the size of an orange. The oldest patient had an ovarian cystoma or cyst from which we withdrew an ordinary water-bucketful of fluid. We gave hypodermically the morphin-hyoscin-cactin preparation at 10 o'clock the night before the operation. The patient slept nicely throughout the night, and all agitation and dread is overcome. We usually operate at 8 or 8:30 o'clock. We give another injection, and then we go ahead and give ether. We do not use chloroform any more, as I am afraid of it. It takes from one dram to one ounce of ether on an average for these patients in order to do an ordinary laparotomy, which will consume say from twenty-five to fifty minutes. We have not had a single bad experience; we have not had any muscular rigidity, which is one of the things most surgeons speak of in laparotomies, when we have used this preliminary injection the night before; but we did have and do have muscular rigidity when we try it on the morning of the operation. I do not know how to account for that unless it is the fact that patients sleep through the night and become completely relaxed before we give them a second injection. These patients can be spoken to and will respond readily; but they are asleep again in a second or two. Sensation is materially blunted. When you disturb them very much the pulse rate increases markedly. When they become tranquil the heart's action is decidedly lowered. We are very careful about transferring patients from their beds to the operating room. We usually slide them on to a wheel-carriage, and they remain perfectly quiet, and we do not speak to them very much. With a few whiffs of ether they are ready for operation. We have been trying this method of anesthesia in obstetric practice, and I think there is where it has its greatest strength. The other day I delivered a primipara, 39 years of age, who had a hard labor. I let the case take its course, for the reason that I wanted to watch the action of the drug. She delivered herself entirely, but had a severe perineal tear reaching clear down to the sphincter muscle. At no time did this woman complain of pain, and each time I spoke to her she would rouse and answer intelligently. Her pains were rhythmical, strong, and the labor was perfectly normal. I sewed up the tear in the perineum without any pain.

## A REPORT OF A CASE OF ESTIVO-AUTUMNAL MALARIA.\*

C. A. W. ZIMMERMAN, M.D., AND WALTER WILHELMJ, M.D.

EAST ST. LOUIS, ILL.

We dare to present to you this day the report of a case afflicted with a disease so common in our locality that it would seem we had but little more to learn about it; yet from the study of this case we can see how obstinate the disease may be to the ordinary routine treatment and how the diagnosis may be questioned.

The patient in question is a little girl, 9 years old, whose mother died of tuberculosis at the age of 31 years. There is no other history of this disease in the family. Father is living, in good health, a butcher by occupation. Three sisters are living, in good health; oldest is 13 years of age. Her brother died young; cause can not be ascertained.

Past History.—Patient had measles several years ago. Was healthy until forepart of May, 1907, when she began feeling badly, felt tired, could not sleep well at night, and thinks she had some fever in the afternoons. Was admitted to St. Mary's Hospital on May 22, 1907, having a continuous fever for four days, the temperature ranging from 102 degrees to 105 degrees. We refer you for detailed information of her temperature during this attack (May 22 to June 1) to the chart. She had some tympanites, pain on pressure over abdomen and offensive stools. The attending physician made a diagnosis of typhoid malarial fever. At this time, in conjunction with other treatment, she received one and one-third grains of quinin sulphate in solution every three hours. She was discharged as recovered from the hospital on the tenth day after admission. Aside from this trouble she had never been sick or injured.

Habits.—She assisted in keeping house for her father. They lived in a hut on the banks of our mosquito-infested Cahokia Creek, were very poor and lacked many necessities of comfort. It might be said here that her younger sister was so bitten by mosquitoes that it was difficult to find a healthy portion of skin.

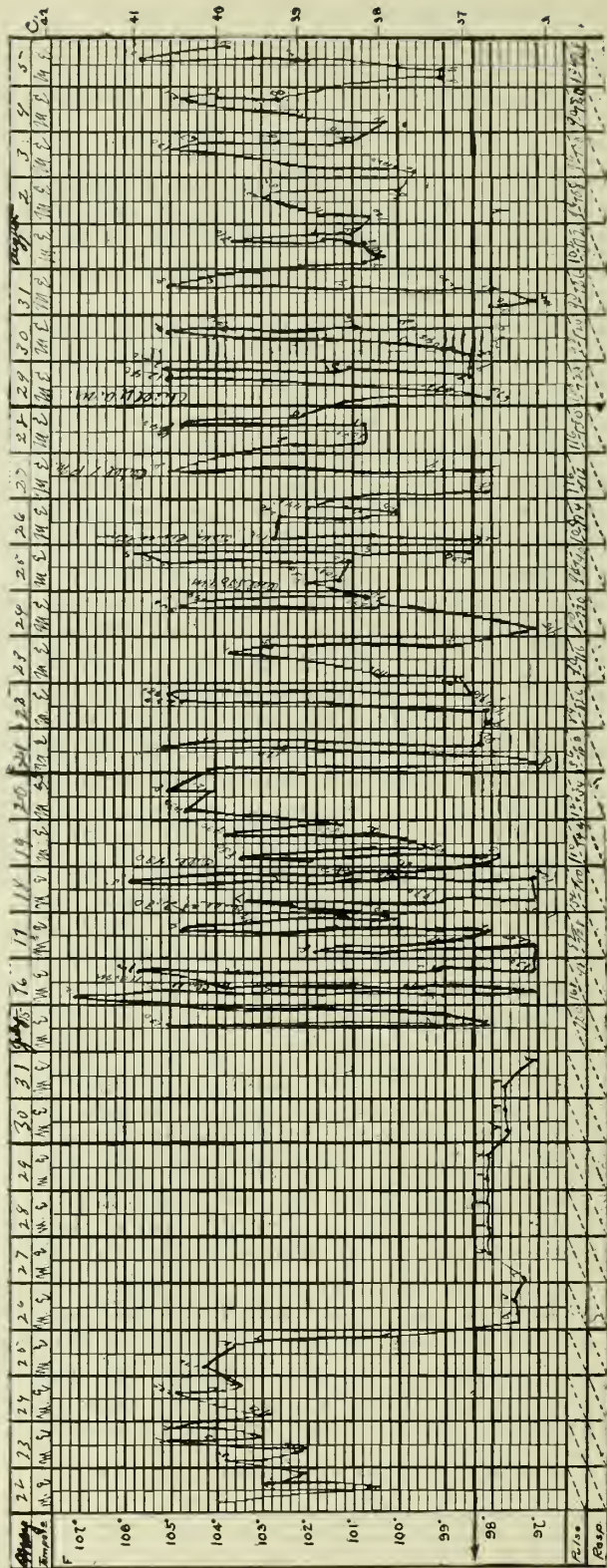
Present History.—Nine days previous to her entrance to the hospital she had a chill, followed by a high fever, and then a sweat. This was repeated every other day, for just how many days patient was unable to say. She entered St. Mary's Hospital July 15, 1907, at 1:30 p. m. Temperature 104.6, pulse 120. Since that time until September 15 she has had an intermittent interchanging with a remittent fever. The further temperature curve you can see on the chart and we will give you a few of the other interesting data. During the patient's illness she had several different physicians attending her at different times. She came under our observation on Aug. 24, 1907. Owing to the courtesy of the other physicians who attended her previous to this time, and the Sisters of St. Mary's Hospital, we were able to get the data previous to our advent in the case.

Physical Examination.—The body is slender and considerably emaciated, both knee joints and feet are swollen, the knees being painful on motion and pressure, not so the feet. The legs between the swollen parts

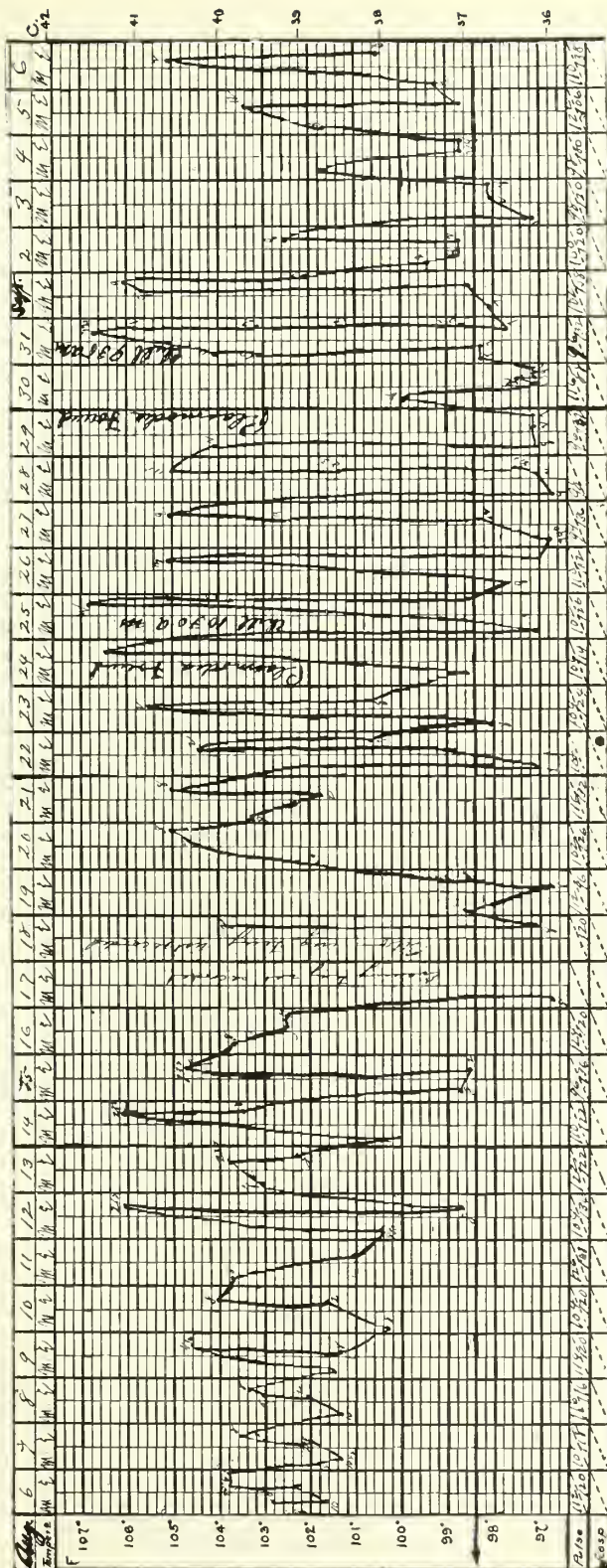
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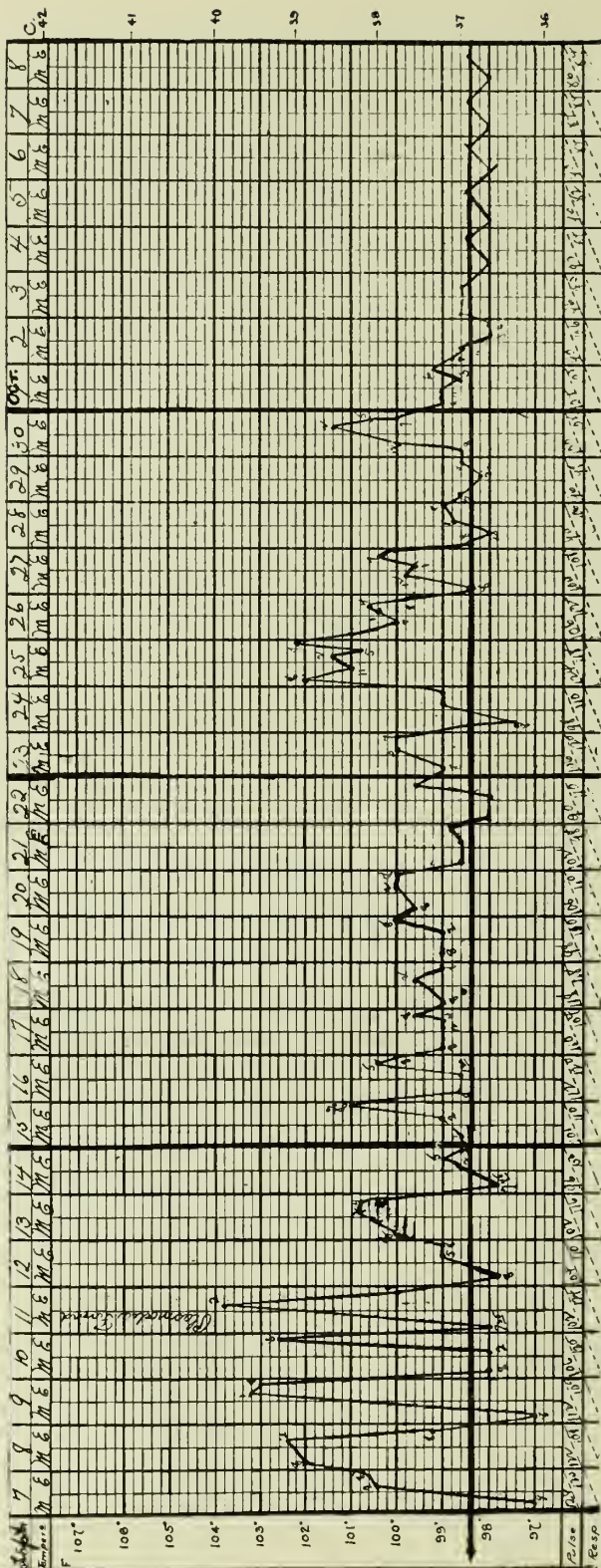
\* Read before the St. Clair County Medical Society, Oct. 3, 1907.











are normal in size. There is no redness, fluctuation nor crepitation about the joints. Child is unable to completely extend legs. The skin has a muddy color, is dry and rough. Mucous membranes very pale.

Digestive System.—Tongue has a slight coat, appetite is pretty good, bowels require attention occasionally. Nothing unusual about the stools. Abdominal walls are flaccid. There is some pain on pressure in left hypochondriac region, but the spleen is not palpable; otherwise examination of abdomen yields nothing abnormal.

Urinary Organs.—Urination normal in frequency, no pain accompanies the act. Various examinations of the urine have given approximately the same result as the following analysis: color, dark amber; reaction acid; slightly cloudy; albumin trace. No sugar, no microscopical elements.

Circulatory System.—Heart does not exceed normal boundaries, the sounds are clear, and there is no evidence of a heart lesion. Pulse rapid, small and at times compressible. There are no enlarged lymph glands.

Respiratory System.—Respirations are regular and 18 per minute. Normal vesicular breathing is heard over all of both lungs, and percussion note is normal. There is no cough.

Nervous System.—Pupils equal, respond to light and accommodation. Knee reflexes normal.

Blood.—A blood count was not made, nor was the hemoglobin estimated. On examining the blood with the oil immersion lens on August 24, we found in the fresh specimen three small, round, motile, hyaline bodies containing dark granules and located within brassy-colored red cells. One crescent was also found at this sitting. On the following day an examination of the stained blood revealed one specimen of the small round variety of malarial parasite. There was no leucocytosis. Up to this time but one diagnosis can be made both clinically and bacteriologically. And the question you will ask is, Why did you not give her quinin? Kindly pardon our detailed mention of quinin.

July 15 patient received 9 grains of quinin sulphate per os.

July 16 patient received 24 grains of quinin sulphate per os.

July 17 patient received 21 grains of quinin sulphate per os.

July 18 patient received 24 grains of quinin sulphate per os.

July 19 patient received 24 grains of quinin sulphate per os.

July 20 patient received 21 grains of quinin sulphate per os.

July 21 patient received 39 grains of quinin sulphate per os.

July 22 patient received 36 grains of quinin sulphate per os.

This was given in the shape of gelatin-coated pills.

During this period patient's fever reached 105 degrees daily and sometimes exceeded it and she had three chills. July 23 to 29 syrup of quinin was used and patient received twenty-four grains daily, the fever went on undisturbed, and four chills are recorded in these seven days. From July 30 to August 4, 35 grains of quinin were given daily in gelatin capsules. From August 4 to 19 patient's stomach rebelled against quinin and it was withheld in all forms. From August 20 to 26 daily doses of 24 grains of bisulphate of quinin were administered in solution. August 27



she received 6 grains of quinin and urea hypodermically and 18 grains of quinin sulphate by mouth. August 28 to 31 daily doses of 18 grains of quinin and urea were given hypodermically and 27 grains of quinin sulphate by mouth, in freshly made pills with glycerin. September 1 patient received 30 grains of quinin and urea hypodermically and 28 grains of quinin sulphate by mouth in fresh pill form. At this time there was great swelling of lower eyelids, which was attributed to the arsenic which was being given at the same time, and there was a diminution in the swelling of knees and ankles, and pain ceased altogether. But from August 1 to August 12 fever had assumed a remittent type, since then it is nearly always of the intermittent variety, always ranging high. On August 31 she had a severe chill followed by a temperature of 105 degrees.

September 2 we gave quinin sulphate 18 grains in fresh pill form. September 3 and 4 we gave quinin and urea hypodermically, grains 18, and 21 grains of quinin sulphate in fresh pill form. From September 6 to 11, inclusive, patient received an average daily dose of 12 grains of bisulphate of quinin hypodermatically. Knees and feet again became as greatly swollen as before. On this day (11th) another blood examination was made and many plasmodia were seen. They were really easy to find, and once we had two of them in one field. These specimens were also seen by several local physicians.

All this time we had been endeavoring to get quinin into the system before a paroxysm, but they were so irregular that we now decided to get 20 grains in the early morning hours, and accordingly we gave 5 grains at 5, 7, 9 and 11 a. m., and had each dose followed by 5 drops of dilute hydrochloric acid, and at last we seemed to be getting results. Cinchonism as manifested by ringing in ears was noticeable for the first time on September 17. Since September 15 the temperature has been over 100 but once.

It should be mentioned that at eleven different sites in which quinin and urea were injected there were abscess formations, and occasionally there was exacerbation of the cellulitis about these areas. To this latter condition the recent elevation of temperature September 25 and 26 must be attributed.

Present Condition.—Skin still has the muddy color, but the mucous membranes are more pink. Nothing abnormal found on examining abdominal and thoracic viscera. A large abscess on her back (at the site of a quinin and urea injection) was evacuated October 1. The culture shows *Streptococcus pyogenes albus*. Blood examination shows no plasmodia, some leucocytosis, hemoglobin 50 per cent. Joints are normal in every respect. Patient's weight when she entered hospital was 60 pounds. September 26, 44¾ pounds, and October 2, 1907, 46¾ pounds. Appetite is good, sleeps well and feels much better.

Urinalysis.—Amber colored, cloudy. S. G. 1019. White sediment on standing. No sugar, no albumin. Clears on boiling. Microscopical examination of sediment shows urates.



General Statement.—We read in Struempell that “if a high fever of intermitting type is affected by large doses of quinin but temporarily, if at all, then a diagnosis of malarial intermittent fever is rendered doubtful. An absolute certain diagnosis can be made only by finding the plasmodia in the blood under the microscope.” In Osler we read that “if the practitioner will take to heart the lesson that an intermittent fever which resists quinin is not malarial he will avoid many errors in diagnosis.” In Anders’ and other text-books we read similar statements and, generally speaking, we agree with them. Then when you note the amount of quinin our patient has taken you might question our diagnosis. We made our diagnosis both directly and by exclusion. Directly by considering the onset of the disease, its consequent behavior, the fever curve and her ultimate recovery and the presence of plasmodia in the blood and the fact that the patient felt well when there was no rise in temperature. In arriving at a diagnosis by exclusion we considered all infectious diseases, but gave special attention to septicemia, tuberculosis and malaria.

Septicemia we ruled out because there was no evidence of pus formation anywhere until after the hypodermic injection of urea and quinin, and this was confirmed by the absence of a leucocytosis at the time of the first three blood examinations. Tuberculosis we ruled out because the temperature curve is not that of tuberculosis, and her appetite was good, no cough, no evidence of pulmonary disease, no pain in spine or hip joint and the cessation of the swelling in the knees and feet.

While no record of the respirations was kept, they were never so rapid as to attract attention and there was no cyanosis.

# ILLINOIS MEDICAL JOURNAL

THE OFFICIAL ORGAN OF THE ILLINOIS STATE MEDICAL SOCIETY.

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DECEMBER, 1907.

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## CANVASS OF THE STATE TO BE UNDERTAKEN BY TRAINED ORGANIZERS.

At the October meeting of the Council of the Illinois Medical Society, an agreement was entered into with the American Medical Association by which systematic, cooperative organization work will be taken up in the state. As it is necessary for the officers and members of county societies to understand the details of the plan, we give the following outline:

The membership department of the American Medical Association has selected the best and most competent men from among its representatives for organization work in Illinois. These men have had much experience along this line in Missouri, Texas, Arkansas, Kentucky and other states. They are, in the majority of cases, physicians and members of the Association, and are thoroughly familiar with all of the details of organization work. The work is taken up by counties and councilor districts. Before an organizer is sent into a district, corrected proof of the physicians of each county, both members and non-members, is sent to the county secretary, who is asked to revise it and return it to the general office of the American Medical Association. This is done for two reasons: First, that the membership list for that county may be complete and up to date; second, to enable the secretary to designate on the proof those physicians in the county who are not members of their county society, but who are eligible and who would be acceptable to the county society. From this returned proof a list of eligible and desirable non-

members is made up, which list is given to the organizer when he starts into the district. At the same time he is given a letter of introduction to the councilor, upon whom he calls before taking up work in the district, and with whom he carefully discusses the work in that particular district. The councilor gives him such advice and instructions as he thinks best and also gives him a letter of introduction to each county secretary in the district. The organizer then takes up each county in turn, calling first on the county secretary and presenting his credentials. The organizer and the county secretary then go over the list of non-members in the county in detail, the secretary giving the organizer such advice in the way of suggestions regarding local conditions, individuals, etc., as he may think advisable. The organizer then calls personally on each desirable non-member in the county, presenting the cause of medical organization and endeavoring to secure the application of the physician in the county society. Applications are taken upon a triplicate blank, one copy of which is turned in to the county secretary, the second is sent to the state secretary, and the third to the office of the General Secretary of the American Medical Association. The organizer, at the time of taking the application, collects one year's dues for the county society, which, of course, includes the state per capita assessment.

As soon as a county is completed, the organizer reports to the secretary of the county society as to the results obtained. When an entire district is completed, a report is made to the councilor of the district. In this way, it is anticipated that within the next few months every physician in Illinois, who is a non-member of his county society, can be personally interviewed and, wherever possible, induced to become a member of his county and state organizations.

The advantages of this kind of organization are many and inevitable. It is to be hoped that the members and especially the officers of county societies will give all possible aid and assistance to the organizers. The growth of the state society, the improved character of *THE JOURNAL*, the advantages of medical defense, all combined, make one of the best membership propositions that can be offered. When it is remembered that the next meeting of the American Medical Association will be held in Chicago, in June of 1908, and that many Illinois physicians who have not heretofore had an opportunity to be present at one of the meetings of the Association will desire to attend, it will be seen that the present time is the most favorable for united organization work which we have had in Illinois.

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#### THE OHIO STATE BOARD OF MEDICAL REGISTRATION HAS REFUSED TO HONOR AN ILLINOIS CERTIFICATE.

From the November 16th *Journal* of the A. M. A. we learn that the Governor and Attorney-General of Ohio have sustained the Board of Registration of that state in refusing a certificate to practice medicine in that State to Charles C. Faws of Bowling Green, Ohio.

It seems that Faws is a graduate of the Toledo Medical College, 1904, and has repeatedly failed to pass the Ohio State examinations. Finally, in January, 1906, he appeared before the Illinois State Board of Health, passed the examination and secured a certificate to practice. This he presented to the Ohio Board and under the reciprocity agreement demanded an Ohio certificate, which the Board has refused to give. Of course, the Board of Registration of Ohio has ample reasons for their refusal to reciprocate in this case with Illinois, or they would not be sustained by the other officers of that State, and it would be interesting to know under what circumstances and conditions Dr. Faws secured his license in Illinois. It would also be interesting to know how a man having this record succeeded in securing a diploma from a reputable medical college anywhere. We have addressed the Secretary of the Board of Registration at Columbus for full particulars in this case and we hope to give them in the next issue of *THE JOURNAL*.

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### THE OTTAWA TENT COLONY.

The symposium on tuberculosis presented at the Bloomington meeting of the Illinois State Medical Society in 1904 was the first systematic and comprehensive effort made in the crusade against tuberculosis in this state. Previous efforts were of a desultory character and accomplished nothing more than to call attention to the necessity for action. The Ottawa Tent Colony is a direct outgrowth of that movement, and is a concrete example of what organized effort will accomplish. It was believed by those responsible for the undertaking that tuberculosis could be cured in this climate. It was fully expected that when this was proven the state would establish a sanatorium for the care of the poor. This part of the plan failed; therefore it became necessary to place the institution on a self-supporting basis. In some respects this has been an advantage, as during the experimental and constructive stage the work has been dominated solely by medical influences. Not only has the curability of tuberculosis in this climate been demonstrated, but the results secured are equally as good as obtained elsewhere, without regard to climatic conditions. This is not its only merit. The simple and economical plan devised for housing is not only more scientific, but has brought the treatment within the reach of many who were otherwise denied the benefits of the sanatorium.

There is no phase of the tuberculosis problem which demands more immediate and careful attention than how we shall expend our money in the care of tuberculous patients, no matter whether at public or private expense. The treatment is relatively expensive as compared with some other diseases. The cost of food is the most expensive item. Any attempt to cheapen this feature by cutting down the quantity or cheapening the quality tends to nullify the treatment just to the extent to which this is done. The modern treatment of tuberculosis is primarily based upon life in the open air. To meet this demand we should make a radical departure from the usual method of hospital construction. This



is the problem which Dr. Pettit and his associates have so successfully accomplished. In its application it has been difficult to get away from the conventional hospital plan of construction, which tends to defeat the end in view. It has been demonstrated that even in this inclement climate it is not necessary to provide tuberculous patients with sleeping apartments in substantial buildings in order to make them comfortable. The simplest and least expensive method which will protect the patient from the inclemency of the weather and supply him with the largest possible amount of the best possible air is all the patient needs and is the one which commends itself for scientific and economic reasons.

This is the problem which has been so successfully evolved at the Ottawa Tent Colony. The experiment has attracted wide attention and its success marks a new era in the construction of sanatoria. Iowa is building a sanatorium on this general plan. The Tuberculosis Commission of Indiana, after visiting institutions throughout the country, endorses the plan as the most nearly ideal of any yet evolved and have recommended its adoption for the proposed sanatoria in that state. The Ottawa Tent Colony is the first of the many sanatoria which will spring up in the great middle west to provide a haven for that great army of consumptives which has been blindly going west to wander aimlessly in search of health, which only an occasional victim succeeds in finding. Like the search for the Holy Grail, we have at last returned to find at our own doors what we have sought for in vain in the much vaunted climate of the arid west and the more remote state of California.

The fact that there are numerous sanatoria in all these noted health resorts is evidence that climate alone is not sufficient for the cure of tuberculosis. Fresh air, good food and properly regulated exercise is the triad upon which the modern treatment rests. Fresh air is not peculiar to any locality or climate. Good food is more abundant and cheaper here than anywhere on earth. Properly regulated exercise depends upon intelligent medical direction. It certainly is not necessary to leave home for this information. This institution marks an epoch in the world-wide crusade against tuberculosis. It is the beginning of a great movement which will result in keeping our consumptives at home where they belong; be treated rationally and successfully instead of sending them west where they are not wanted; no rational or adequate provision is made for their care, and where many thousands each year die friendless and alone, or after a vain search for health, which leaves them impoverished, are only able to barely drag themselves home to die.

While Drs. Pettit and Butterfield are entitled to credit for working out this problem, it is only fair to say that their work was made possible by the encouragement and support of the medical profession of this state. The Ottawa Tent Colony is a creation of the Illinois State Medical Society. Its future success and influence depends upon the same fostering care which has attended its success thus far. After three years of patient, persistent effort it has been placed on a most excellent footing. It is now equipped to give first class service at a moderate expense. It is a remarkable fact that patients make more substantial and rapid

progress in winter than in summer, which demonstrates the fallacy of the popular delusion that tuberculosis is only curable in the milder climates.

### THE KEELEY CURE.

About thirty years ago one Leslie E. Keeley, a practitioner of Dwight, Illinois, conceived the idea of treating inebriety and, taking a preacher-lawyer into his confidence, advertised extensively that he had discovered a new treatment for this disease which he christened "The Double Chloride of Gold Cure." In 1882 we had occasion to visit Dwight for a few days and met Dr. Keeley, a few minutes, in his office, which had all the characteristics of a slovenly country doctor's shop and gave very little premonition of the gold which soon after began to pour into his lap and, when the institute was at its best, had a considerable influence in building up the town of Dwight. From what has since developed, it appears that, outside of the gold left by the "students," very little of this metal was to be found in Keeley's establishment. So skilful was Dr. Keeley or his associate as advertisers that an immense business was quickly developed and the "parent institution," as the Dwight Institute came to be known, had at one time four or five hundred "students" taking the "cure."

So great was the impression made upon the public mind that the Illinois Legislature in or about 1899 seriously considered the passage of a law requiring the counties to pay the cost of treating inebriates by this method. This unprecedented action of the legislature was fortunately thwarted by the good sense of some one, but nothing could better show the poor judgment of our lawmakers regarding medical subjects than the exposure of the Keeley cure and their mistaken attitude regarding it. Many people suppose that the gold cure has suffered an eclipse, but this is quite a mistake. While the number of persons taking treatment at Dwight is probably at this time not more than seventy-five or a hundred, yet so skilfully have the proprietors carried on their business arrangements that branch institutions are carried on by the dozens over the world. These branches, we are informed, get all the medicines used in the "cures" from the "parent institution" at Dwight, paying exorbitant prices for them, and in this manner a constant stream of gold flows to the promoters.

J. R. Oughton, a former drug clerk, is probably the one who has made the greatest profit out of this affair, and he is said to live in magnificence, indicating a large estate. A lawsuit with one of these branches has brought out the true inwardness of the entire scheme.

From the foregoing it will be seen that the exposure of the Keeley system has interest for every medical man and especially for every Illinois practitioner, because the system was developed in this State and our lawmakers were so nearly humbugged by the specious pleas of the proprietors. It is with considerable satisfaction, therefore, that we give place to an exposure of the cure, which has been made in a pamphlet giving in full the opinion of Judge Cochran of the United States Court

of Appeals in the case of the Memphis Keeley Institute, appellants, vs. The Leslie E. Keeley Company, appellee.

From the opinion it appears that the Memphis concern had been enjoined by the original Keeley Company from claiming that it had a right to use the Keeley remedies and the contract between the two had been canceled. This decision had been appealed by the Memphis Keeley Institute, on the ground that the Keeley Company had built up and maintained its business by fraudulent representations; did not, in fact, come into court "with clean hands," and, therefore, is not entitled to the protection which had been granted it by the lower court. The higher court maintained that there was abundant evidence to prove that the Keeley business obtained its start and has reached its eminence by gross misrepresentations and that a company thus preying upon the public should not be protected in its frauds by the court. For these reasons, the appeal was decided in favor of the Memphis institute.

The evidence showed conclusively that these remedies for the liquor, opium and tobacco habits are advertised as the "Double Chloride of Gold Cure," and that the company also has a remedy for neurasthenia known as "Gold Neurotine." To make the claim that these medicines contain gold more impressive the labels are in gold and contain the words: "Gold cure for opium habit, gold cure for drunkenness, gold cure for tobacco habit," all in gold. It is also stated on the labels: "Gold is especially beneficial in its action on the mental forces. It gives the patient courage, hope and renewed will power, and is the only medical agent that will effectually and forever relieve all craving or necessity for alcohol in any form. The remedy can in no way act injuriously on the patient." Quotations are also made from the literature sent out by the company, showing that the statement that the remedies contain gold is again and again made.

The evidence showed, as every physician knows, that there is no such salt as the "double chloride of gold," and, furthermore, that there is no gold in any form whatsoever, in any of the so-called remedies.

Interesting light was thrown on the formation of the original Keeley Company by a witness, one F. B. Hargraves. Before connecting himself with Leslie E. Keeley, Hargraves had been a preacher in the Wesleyan Methodist Church in England and then a lawyer. This is another proof of the statement which Dr. McCormack has frequently made, that many quack doctors have previously been quack preachers. From the evidence of this man Hargraves, it appears that in 1880 both he and Dr. Keeley were residing in Dwight, Hargraves having few clients and Keeley few patients. Independently they saw some newspaper reference to a cure for drunkenness, and decided to try it on Pat Conafry, a saloon-keeper of that place. Pat took the stuff and in about a week lost his desire for whisky. However, he made strenuous efforts to drink again and "one Sunday got a drink to stick and became gloriously drunk," after which he would take the medicine no more. This testimony was sufficient for Hargraves, who formed a partnership with Keeley. This was the origin of the cure business, the company being known as that of "Leslie E.

Keeley, M.D." The cure was then tried with good effect on Major Campbell of Kentucky, and he came into the firm. In 1881 a company was formed with the same name between Keeley, Hargraves, J. R. Oughton, a drug clerk, Major C. J. Judd and Fr. James Halpin, a Catholic priest of Dwight. Keeley did not appear personally and would say, "I am the big spider in the back office, always throw a little mystery around me, keep me in the background." The drug clerk was the manufacturer and Hargraves the advertiser.

Hargraves further testified that he knew the formula and that the remedies contained no gold. Gold had been used but once. The third patient treated, a sewing machine agent named Daliba of Bloomington, was given chlorid of gold and sodium in pill form. It nearly killed the man and the gold pill was never afterward employed. Some other remedy was hit upon, but they never gave up the name "gold cure." Keeley claimed that it sounded well and justified its use by saying that there is "gold in everything, gold in sea water, in mud—in everything. There is a trace of gold in it and that is enough." In the safe at the laboratory they kept a few drams of gold chlorid and these were shown to visitors as samples of the ingredients of the sterling remedies.

Hargraves relates that they were constantly assailed by persons claiming that there was no gold in the remedies. To offset this they called on S. T. K. Prime, a distinguished citizen of Dwight, to help them out of the dilemma. Prime justly bore a good reputation all over the state and, of course, would not be party to any fraud. At the instance of the proprietors, Mr. Prime came to their laboratory and picked two bottles from the stock prepared for shipment and carried them to Professor Marriner, a Chicago chemist, for analysis. Before Prime did this, Oughton fixed up two bottles with gold in them and put them in a row that was half full of bottles. They were the last two bottles in the row, and naturally Prime selected those two bottles, as they were the nearest to him and came first to his hand. Of course Professor Marriner found gold in the mixture submitted to him and they obtained a certificate from Prime as to his having selected the bottles from those in the laboratory prepared for shipment, and another certificate from Marriner as to the result of his analysis, and both were circulated in the course of the business. The testimony used to controvert that of Hargraves seemed unconvincing to Judge Cochran, justly so as appears from his review of it.

The Keeley Company held further that even if the remedies did not contain gold this is no reason why they should not be protected. In denying their right to protection the judge quotes the well-known case of the Fig Syrup Company against Stearnes, restraining them from using the name "Fig Syrup." The injunction was not granted because it was shown that the original company fraudulently represented to the public that the chief ingredient was the syrup of figs, although there was but a trace of the latter, the main ingredient being senna. Judge Taft in denying the injunction said: "This is a fraud upon the public. It is true it may be a harmless humbug to palm off on the public as



syrup of figs what is syrup of senna, but it is nevertheless of such a character that a court of equity will not encourage it by extending any relief to the person who seeks to protect a business which has grown out of and is dependent upon such deceit." In no branch of business will this principle of refusal to protect a fraudulent article be more applicable than in the manufacture of patent medicines. There has been at least one other decision along the same line and it is to be hoped that more will follow.

Oughton was the prominent figure in the trick played on Prime and Professor Marriner. Oughton has been president of the concern since Keeley died Feb. 21, 1900.

We thus see that Dr. Keeley's memory must go down to posterity, instead of being honored and revered, as a common swindler and faker, and the institution at Dwight will probably soon pass into history as another example of the gullibility of the public. Would it not be advisable to bring this exposure to the attention of every member of the legislature and every public-spirited citizen of Illinois in order to prevent disgraceful exhibitions of official stupidity in the future?

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### Scientific Editorial.

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#### PSYCHIC MANIFESTATIONS WHICH MAY ACCOMPANY ENLARGEMENT OF THE PROSTATE GLAND.

The literature is full of the descriptive pathology of the prostate gland. But, so far as a rather thorough search can determine, no word in recital of the mental manifestations which often accompany disease of this organ in old men can be found in the literature of any country.

In a series of thirteen cases of hypertrophied prostate, three had a history of marked senile sexual aberration, and it is believed that this ratio will hold good throughout the kingdom of the prostatics. From the newspaper reports of "a man of 86 marries a girl of 16" on down through the almost unmentionable crimes of old men against little girls to the pronounced young neurasthenic suffering from a prostatitis is a possible chain of sequence which has not been sufficiently recognized, except in a certain imperfect way, by medical jurisprudence. Earlier recognition of the mental symptoms which accompany, in a certain proportion of cases, enlargement of the prostate, would save the pride of the family of the sufferer and prevent the moral health of communities being shocked and undermined.

None of the 3 cases above referred to were from among the class of the ignorant or vicious. Indeed, the worst sufferer, aged 74, was a member of the legal profession who had served part of his career on the bench. Yet disruption of his home, and a great public scandal threatened because of his unnatural sexual relations with various of the lower animal kingdom. The surgical removal of a very large juicy prostate restored the mental unbalance of this individual to its normal standard; and now,

after three years, he possesses none of the psychical manifestations which made him a horror to his family and former friends. Of the two remaining cases mentioned above, one (aged 69) was practically insane along sexual lines, but promptly recovered upon removal of his greatly enlarged prostate gland. The other, 75, when admitted to the hospital, would stealthily leave notes, couched in lascivious terms, where they would be found by the nurses. Removal of the prostate in this patient—and here, too, the gland was greatly hypertrophied—led to a dismissal of his abnormal sexual life.

Another patient, aged 68, but not included in the above series of thirteen cases, a leader in the religious and business life of his city, a man of wealth and engaging personality, started an undercurrent of breathless scandal because of his sexual relations with negro women. This man has apparently recovered, following a severe attack of prostatitis some years ago with the formation of a large abscess which was opened surgically through the perineum.

This phase of the diseased prostate opens up the possibility of a more rational study of the pelvic environment of the prostate gland in the sexual neurasthenics and sexual perverts among men, old and young. It gives a more healthy viewpoint as to the basis of the clinical symptoms which spring from the pathology which we, in a measure at least, already know. Many old prostatics are in our insane asylums, many of them are in the government and state soldiers' homes all over the country, and as well in the various county almshouses. Many of these inmates are plagued by all sorts of sexual phantasms which lead them into the various revolting practices known to be true of some of them.

These patients would furnish abundant clinical material for the proper working out and classification and final elucidation of this subject could their symptoms be studied with the hypertrophied prostate in mind as a causative factor. The strain of sexual excesses from early life until old age, the intimate connection maintained between the prostate gland and the sympathetic and the cerebrospinal nerves, the unknown secretory functions of the prostate gland along physiological lines—these all make prominent the fact that with the hypertrophied prostate can be had a class of symptoms referable to the sexual system where the mental life of the sufferer carries him close to the border where insanity has its dominion and which can be corrected by the aid of surgery.

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## OFFICIAL ANNOUNCEMENT.

### SPACE FOR EXHIBITS AT THE ANNUAL MEETING.

The committee of arrangements for the annual meeting of the State Society at Peoria, May 19, 20 and 21, 1908, announce that they are now ready to dispose of space for exhibits at this meeting and that Dr. W. R. Allison, chairman of the committee, may be addressed at any time. First come, first served.

## Correspondence

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### OPERATION ON A CENTENARIAN.

BELOIT, WIS., Nov. 14, 1907.

EDITOR ILLINOIS MEDICAL JOURNAL, Springfield, Ill.

*Dear Doctor:*—In one of Dr. J. B. Murphy's year books in surgery I believe he reported his oldest case of recovery from strangulated inguinal hernia with operation at 84 years, and some other surgeon had one at 87. I presume there are many other older cases the reports of which I have not seen. I enclose you the 100th birthday card (Nov. 7, 1907) of Mrs. Kinney, who lives in Beloit. May 2, 1904, when she was in her 97th year, I operated on her at her home for large strangulated inguinal hernia that had been down several hours, resulting in relief and a radical cure. The straight Bassini operation was done. Sept. 6, 1906, she had a broken hip and recovered with the ordinary Bucks extension treatment and walks about as well to-day as ever. She uses a cane, as she is bent a good deal, but she used the cane long before that time.

Ten years before, that is in 1893, she sustained a fracture of one arm at elbow, which recovered with excellent motion.

I reported this case to Dr. Murphy, and he suggested that I submit it to you. Sincerely yours,

A. C. HELM, M.D.

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### ANTITOXIN MANUFACTURER ANSWERS INQUIRY.

NEW YORK CITY, Nov. 8, 1907.

*To the Editor:*—Our attention has been called to an unsigned letter of inquiry in your issue for November, headed "Inquiry About New Antitoxin Law." In the first instance, this seems to be an incorrect heading, for the inquiry is based not on the antitoxin law, but on the question of the ability of this firm to furnish an antitoxin above suspicion. The reputation of Dr. Lederle, who was formerly Commissioner of Health of this city, should be sufficient guarantee that any product issued under his name will be of the very highest quality. Not only Dr. Lederle's name stands behind our antitoxin, but the names of Messrs. Schieffelin & Co., who are our selling agents and who have been in business for over a century and who bear the highest reputation, stand sponsor for our goods.

Aside from any personal responsibility or guarantees, we would call your attention to the fact that the United States Public Health and Marine-Hospital Service is constantly inspecting the products of all antitoxin manufacturers; testing samples and supervising the production of these products so that no manufacturer can continue to do business who does not produce an antitoxin in every way reliable. The government licenses all antitoxin manufacturers and would revoke a license if the goods put out by any manufacturer did not meet all its requirements.

Our antitoxin has been used very largely by boards of health in many of the large cities of the country and by many state boards of health. We would specially have you note that for a year and a half nearly we have

been supplying the State Board of Health of the State of Ohio and for nearly the same length of time the State Board of Health of the State of Minnesota.

We should very much appreciate your giving this letter the same prominence in your columns that the inquiry "S. I." was given in your November issue.

Thanking you for this courtesy, we remain,

Very truly yours,

LEDERLE ANTITOXIN LABORATORIES.

F. D. BELL, Secretary.

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#### EDITORIAL ON ROENTGENOTHERAPY COMMENDED.

*To the Editor:*—As a conservative Roentgenotherapist, I am very much pleased with your scientific editorial in the current number of *THE JOURNAL*. It is certainly a fair statement, well within the facts and experiences of the past few years. The trouble has been with the consideration of the  $x$ -ray that there have been two diametrically opposed classes of physicians; one class who were so enthusiastic in the use of the  $x$ -ray that they used it for every condition or disease known to medicine, and, on the other hand, there was an equally large class who would not admit that the  $x$ -ray had any value whatever beyond the location of bullets and broken bones. Between these two extremes, as in most disputed subjects, there is a middle ground, which fairly represents the real status of affairs. This you have presented with perfect fairness in your editorial, for which you deserve the thanks of all conservative  $x$ -ray workers.

Sincerely yours,

NOBLE M. EBERHART.

72 Madison St., Chicago.

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#### Special Article.

RECENT SURGICAL ADVANCEMENT REPORTED AND DISCUSSED AT THE TWENTIETH CONGRESS OF THE "ASSOCIATION FRANCAISE DE CHIRURGIE," HELD IN PARIS FROM THE 7TH TO THE 12TH OF OCTOBER, 1907.

PARIS, Oct. 14, 1907.

*To the Editor:*

The Congress took place in the grand amphitheater of the faculty of medicine, which was beautifully decorated for the occasion. The flags of the most important nations, so skilfully arranged, added very much to the ornamentation. The American, English, German and French occupied the most important positions, in the center of the front wall. Immediately above the presidential table were hanging the French words, the pride of every medical man:



Ils étanchent le sang consacré à la défense de la patrie. La bienfaisance du souverain hâte leur progrès et récompense leur zèle. Ils tiennent des Dieux les principes qu'ils nous ont transmis.

The inauguration of the Congress occurred on Monday, the 7th, at 2 p. m. The amphitheater was crowded. Many foreign surgeons were present. As the Genitourinary French Congress occurred during the same dates, but at different hours, it was possible to attend both congresses. The President, Paul Berger, after welcoming the foreign and home guests, made the presidential address, which was brief but to the point. Among the many things related of interest were his expressions of regrets and deep sorrow for the deaths of the foreign and home surgeons which occurred during the year. More particularly to be mentioned were von Bergman and Carl Poirier. The meetings were held every afternoon from 2 till 7 p. m., and the morning time spent at the various surgical clinics held in the Hospital of Paris. The latter clinic, with operations and names of operators posted on the door of the amphitheater, was an excellent arrangement for the members.

The first article read was "The Influence of X-Rays on Malignant Growth," by Bécélère of Paris and Maunoury of Chartres. There were twenty members appointed to discuss this question at the time the program was made; therefore, the speakers were all prepared. Such discussion, as observed by the listeners, was of great value, as it combined an aggregation of literary knowledge and of all personal experiences of able men of nearly every department of France plus Drs. Phoscos of Athens, Voronoff of Algeria and Mayer of Bruxelles. It was a battle between the dermatologists on one side and the surgeons on the other, which resolved itself by both parties admitting that the rays will cure: 1, small superficial epitheliomata of the skin; 2, that they should be used in all cases after the growth, no matter what the origin, has been removed by the surgeon. Pozzi (not the gynecologist) recommends the cauterization of ulcerating carcinoma of the vulva, breast, etc., with sparks of high frequency obtained by the D'Arsonval-GaiFFE instrument, then curetting the suppurating mass, thus preparing the field for a clean operation which may be performed a few days later. Pozzi believed by so doing the electric current will prevent the dissemination of the carcinomatous cells.

Professor Doyen, the eminent surgeon, made an eloquent speech and opposed strongly the views that x-rays cure malignant growths. He criticized the profession at large for publishing and reporting cases improperly observed, thus leading to wrong conclusions.

The next important paper was "Experience and Results in the Treatment of Trifacial Neuralgia," by J. Dollinger. During the last ten years he resected in 14 patients 21 branches of the trifacial and in 22 other cases extirpated the Gasserian ganglia. His results and conclusions were: resection of nerves is only a palliative operation, the same as the medical treatment; it rarely gives definite results. The extirpation of the ganglion is the only treatment to be recommended. He operated 22 cases with one death, 4 cases died 3 to 4 years after operation without recurrence, 2 could not be traced, 15 cases were re-examined and satisfactorily

cured. He does the Hartley-Krause operation with a slight modification, that is ligation of external carotid (preliminary), after reaching the ganglion cuts the second and third branch, then the ganglion and, lastly, the ophthalmic or first branch. There were no papers on the alcoholic treatment of trifacial neuralgia, so vigorously taken up last year by the neurologists of Chicago.

The second day of the congress was marked by a still greater attendance than the first. It was evident that the program for the day was to be of special interest and it consisted of five papers on the surgery of neck, larynx, esophagus; five on surgery of the chest; nine on abdominal surgical topics; six important articles on the surgery of the stomach; four articles treating of the surgery of the biliary tract, and four papers on rectal surgery.

Probably the most important communication of the day was made by Tuffier of Paris. He described a new principle in the postoperative treatment of recent cases of pleural empyema, which consists in the application of a cup once a day over the drainage opening and causing a vacuum by means of a rubber bulb to bring the lung to the chest wall. The advantages claimed by the author are that all cases will cure more rapidly and rarely will it ever be necessary to resort to Schede or Estlander operations, which are mutilating and cure by adding to the deformity of the chest. This article was fully discussed by Walther, Doyen, Terrier, Legueu, and others.

Jonnesco contributed a most important article treating of the indicated operations in bleeding ulcer of the pylorus. His contentions were that posterior gastroenterostomy above does not stop the bleeding, it does not cure the ulcer, nor does it change the chemistry of the stomach secretions. He demonstrated by the statistics of cases of other surgeons and of his own that the resection of the ulcer was the preferable operation when possible, plus a posterior gastroenterostomy in cases where the resection was impossible; exclusion of the pylorus plus a posterior gastroenterostomy was the next best operation; he stated that after an exclusion or resection the hyperacidity diminishes a few days after the operation.

Braquehay of Tunis described a new method of operation and curing rectal strictures, which consists in splitting the anterior rectal wall by a median incision till one reaches the stricture, removing the anterior wall of the structure, then make a flap from the scrotum in the male and the posterior vaginal wall in the female to correspond to part removed, twist same on pedicle and suture flap in its new position. He reported a series of excellent and permanent results obtained with his method.

The third meeting was entirely devoted to orthopedic surgery. Gaudier of Lille and Kirmisson of Paris read a very complete contribution on nervous, muscular and tendinous transplantation in the treatment of paralysis. The discussion by Hoffa, Robert Jones Lange and Vulpus was equally as exhaustive. Their unanimous conclusions were: 1, must not operate on children before 5 years of age; in infantile paralysis 18 months must have elapsed since onset of disease before operating; 2, long preliminary treatment to correct position before transplanting; 3,

long after-treatment, at least one to two years; mechanical appliances are to be carried on to retain limb in position; lastly, to assure good results, must select your cases.

Depage of Bruxelles, whom I had the pleasure of seeing operate and to see some results obtained by a new method of treating complicated recent and old fractures, reported his method of treatment here at the congress and was warmly applauded.

Thursday, the sixth day of the congress, there was no session, but Hoffa of Berlin and Robert Jones of London gave clinical demonstrations at the Hôpital des Enfants Malades. In the morning many nerves, muscles and tendon transplantations were executed, technically perfect with an exhaustive asepsis, and the cast applied with master precision. In the afternoon 12 congenital dislocations of hip were reduced by the non-operative method, all with ease and promising good results. Peugniez showed 5 cases of hypoglossal-facial anastomosis with as perfect results as one can obtain under such circumstances. In France they prefer the hypoglossal, for the reason that with the spinal the patient, as a rule, complains of the shoulder movements, which are in some cases very annoying. Tuffier of Paris performed Roux's operation of entero-gastro-esophago-anastomosis for cicatricial contraction of the cardiac end of the stomach. This was his fifth case, with 3 living, certainly a good per cent. of recovery for such a complicated operation. Hartmann and Albaran showed and operated kidney cases too complicated to give details in this brief letter; Doyen trephined a case for cerebral tumor. With his electrical instruments one can shape with precision and quickness any cranial flaps; cut same obliquely instead of at the cortex. He operated also 5 abdominal cases. Late in the evening the surgical instrument makers of France explained their exhibits to the members, many new things useful in this line, although many too expensive to warrant great sales.

Friday's program was somewhat of a surprise to me, as I have never read nor heard of a surgical body giving so much prominence to the medicolegal question of the relations existing in subjects suffering with tuberculosis and carcinoma and accidents occurring to the person while at work, or, in other words, chronic surgical affections, tubercular and carcinomatous, and their relations to accidents occurring in subjects suffering with same while at work.

Segond of Paris and Jeanbrau of Montpellier exhausted the subject for the purpose of stimulating the interest of members; resolutions were passed and forwarded to the proper legislators demanding a revision of the old law. Segond contrasted the law of France and Germany, which were divergent in their logies and neither correct to employer nor employé. For instance, in France a subject with a healed tubercular hip receives an accident on that hip through the neglect of his employer, the tubercular process manifests itself again, which finally kills the patient. The family of that man is not entitled to anything; once a tubercular always tubercular. In Germany a working man receives a trauma to the knee; up to two years from date of accident, if anything happens to that knee, he is entitled to recover from his employer, etc. He ended by stat-

ing that the laws are always stupid and we must remedy them. Twenty-five members were appointed to discuss this question.

The program of the last day did not contain many interesting articles. Eckstein of Berlin, however, reported excellent results with injections and implantations of paraffin with no postoperative complications, and all those of us interested in that line of work will find a fountain of information in his article.

At the Genito-urinary Congress on the first day the subject of prostatic abscess, cause, diagnosis and methods of treatment were fully treated by Pousson, Delbet, Franck of Berlin, Heresco of Bucarest, Legucu, Hartmann and Albarran of Paris. They all agree on the perineal route of evacuating the abscess and to open them early; the rectal route only when it pointed strongly toward the rectal lumen.

The second day the most important subjects were: 1, The polycystic (single and bilateral) kidney, by Pousson of Bordeaux. He treated masterly the causes, diagnosis and treatment. He advocated interference only when such kidney gives symptoms demanding interference, namely, pain and hemorrhage, more rarely the symptoms and signs of cystic cavity containing pus. Cases were reported and specimens exhibited.

During the last day Albarran contributed some recent observations on the condition of the kidney after extirpating a tubercular kidney, which are as follows: In some 60 cases he observed that in a renal surgical tuberculosis, prior and after operation, the sound kidney secreted a certain amount of albumin, from 2 grams to 50 to 60 grams of albumin for years after the tubercular kidney has been removed. However, such patients enjoyed perfect health. The urine of such kidneys never contained blood, pus nor casts and answer perfectly to the functional tests.

Postmortem examination of such patients who have died of other causes revealed that the remaining kidney showed no tuberculosis. Albarran offered as an explanation for this phenomena that the healthy kidney has been slightly injured by the toxins of the opposite tubercular kidney and that it can never fully recover and will always secrete a slight amount of albumin.

The congress terminated Saturday at 6 p. m. It was a great success. There was a greater attendance than at any previous session, all the members seemed satisfied and, I am sure, returned home with an improved medical knowledge.

V. BACCUS, M.D., Member of Congress.



# COUNTY AND DISTRICT SOCIETIES

## COOK COUNTY.

### CHICAGO MEDICAL SOCIETY.

*Regular Meeting, Oct. 9, 1907.*

A regular meeting was held Oct. 9, 1907, with the president, Dr. Henry B. Favill, in the chair. Dr. H. Gradle read a paper on "The Painless Removal of Tonsils and Adenoids," which was discussed by Drs. Thomas, Farrell, Pierce, Holinger, F. D. Reed, C. M. Robertson, and the discussion closed by Dr. Gradle. Dr. William J. Butler read a paper on "The Serum Diagnosis of Syphilis." Dr. D. N. Eisendrath read a paper on "Subphrenic Abscess Complicating Appendicitis," which was discussed by Drs. M. L. Harris and A. D. Bevan.

### THE PAINLESS REMOVAL OF ADENOIDS AND TONSILS.

H. GRADLE, M.D., CHICAGO.

It is still a much discussed question whether adenoid operations should be done with or without narcosis. Statistics gathered by Hinkel about ten years ago showed that the use of chloroform in children with enlargement of the pharyngeal or faucial tonsils has caused an unproportionately large number of deaths. It is hence not justifiable to use chloroform for this purpose. No statistics have been gathered relative to the danger of ether and chlorid of ethyl in these patients. But there is certainly no reason to believe that they are any less exempt from danger attending any anesthetic than patients without lymphatic enlargement. Hence we should adhere to the rule in this case as well as in general surgery, to operate without systemic anesthesia whenever feasible, providing of course the work can be done as successfully and with as little suffering.

When patients or parents insist on narcosis nitrous oxid gas is the safest for simple adenotomy. Besides the risk of sudden death there are always some minor dangers involved in anesthesia, although these are not usually referred to. Parker, who strongly condemns adenoid operations without general anesthesia, speaks in his text-book (*Diseases of the Nose and Throat*) of the possibility of pneumonia and of middle ear infection as a postoperative occurrence. On the other hand I can state positively that in over 1,600 adenoid operations without general anesthesia, I have never met with an untoward sequel. On the basis of this large experience I can likewise state definitely that I have never observed any permanent influence on a child's pluck or emotions, even in the days before cocaine. The so-called "psychic shock" of a momentary operation without much suffering is not greater than that produced by narcosis in a resisting child.

With proper skill the operation can be done as efficiently in the wideawake child as in the anesthetized subject. In proof of this I can only assert that subsequent examinations have always shown me a clear pharynx and that a secondary operation has become a rare exception in my experience. As I have mentioned previously, unpleasant sequels after operations have not occurred in my practice. Personally, I find the momentary struggling of a resisting child less of an impediment in the course of the operation than the free hemorrhage and the anxiety of watching the breathing during narcosis.

During the last ten years I have used for ordinary adenoid operations no instrument but the guillotine-shaped adenotome of Schuetz as modified by myself. As a rule the instrument, if of sufficient size, needs to be introduced but once. On withdrawing it the whole pharyngeal tonsil is brought out intact as proof of complete removal. When the adenoids are very extensive I press the instrument firmly towards one Rosenmueller fossa and after its action reinsert it towards the other side. On the basis of personal experience and observation of other opera-

tors, I can claim that the adenotome does its work quicker, with less hemorrhage, and as efficiently as any other instrument.

Until the present year I attempted to reduce the pain of the operation by brushing the pharynx up to its roof with 20 per cent. cocaine solution repeatedly, alternating with adrenalin. It is impossible to operate painlessly with this method, although older children have often assured me that the pain and distress are only moderate. Since the past winter I have learned to abolish actual pain almost completely by submucous injections of cocaine and adrenalin. A hypodermic needle 10 c.c. in length is thrust twice into the posterior wall of the pharynx as high as possible after elevating the soft palate with a blunt hook. Perhaps a curved needle may be more satisfactory, but I have not as yet used it. More efficient even is the injection higher up through the nasal passage, if not obstructed. After using a cocaine spray a blunt canula just thick enough to serve as a shield for the hypodermic needle is put through the nasal passage. The long hypodermic needle is thrust through this into the pharyngeal tonsil itself. About ten minutes after a well carried out injection the patient does not feel the pain of cutting. He complains merely of the gagging. The headache which occasionally follows the operation is just as apt to occur after narcosis. An important advantage of interstitial injection of cocaine and adrenalin is the almost complete absence of bleeding at the time. I have never seen any more subsequent hemorrhage, in fact decidedly less, after such an injection, than without its use.

In operations upon the faucial tonsils narcosis cannot be as generally discarded as in adenotomy. The latter can be done just as efficiently in spite of a child's struggling, and without risk, while tonsil operations require submission of the patient. If a child can not be trusted it is necessary to narcotize in order to do good work. But to a submissive child I can promise absolute painlessness. A very fine hypodermic needle attached to a heavier extension is practically not felt. With about ten drops of a 1 per cent., or even  $\frac{1}{2}$  per cent. solution of cocaine with adrenalin (1 in 4,000) injected all around the periphery of the tonsil, complete insensibility to cutting is obtained. Pain is, however, felt when any strong traction is made, especially with the snare. A marked reduction of bleeding facilitates the operation and makes the injections a valuable aid, even when general anesthesia has to be employed.

While a guillotine-shaped tonsillotome is the easiest and quickest instrument, it but rarely removes the tonsil thoroughly enough to be satisfactory. It can be more efficiently used, however, after a preliminary separation of the tonsil from the pillars and from its bed by means of scissors. A single pair of long scissors bent on the flat (Price's or Willis') answers for most purposes. Sometimes the right and left Emmet uterine scissors are especially convenient. During the dissection not much traction should be employed, as this is painful. After this partial dissection of the tonsil from its upper adhesions it can often be snipped off to good advantage by means of the tonsillotome. There is no disadvantage in leaving the extreme lower portion of the tonsil, as this contains no crypts and is never the starting point of inflammation. If the partially dissected tonsil is too small to be grasped by the tonsillotome it can be entirely removed by means of scissors or the hot snare. Unless the tonsillar tissue is very soft the cold snare is apt to cause pain.

In dealing with small flat tonsils that require removal on account of the irritation which they cause, I have found it convenient to put a blunt hook into each crypt successively and snip off with scissors external to the hook. With this class of tonsils, as well as with remnants after an incomplete extirpation with the guillotine, one can work to good advantage and painlessly with a punch. The Freer nasal cutting forceps or any similar forceps with a good bite answers well, which is more than I can say for the large Roberts punch.

When general anesthesia can not be avoided the operation is aided by the influence of a preliminary injection of cocaine and adrenalin upon the blood vessels. It is my custom to loosen the tonsil from the pillars and the supratonsillar fossa by means of scissors and then shell out as much as possible of the gland with the disinfected finger, finishing the amputation with a cold snare.

## DISCUSSION.

Dr. Homer M. Thomas:—The effort of Dr. Gradle to overcome many of the difficulties encountered in the removal of tonsils and adenoids is to be greatly appreciated. The removal of these structures after subcutaneous injection of adrenalin and cocain is to be recommended from the operative standpoint when it can be done so successfully as Dr. Gradle has shown. I have not had any experience with this method, but all those who are doing this class of work are aware of the dangers of general anesthesia in throat operations. The presence of large amounts of blood in the fauces and the possibility of their being carried into the respiratory tract is a danger that confronts every operator. Any method which will lessen these dangers and yet not interfere with the value of the operation is a distinct advance on anything we have ever had recommended to us.

The choice of an anesthetic is of much moment. I have been using nitrous oxid for over twenty years, and have found it sufficient to remove adenoids and tonsils. It produces a semi-anesthesia, but sufficient relaxation so that the operation can be performed quickly and safely. Of course, the broader topic, which is one of considerable controversy among laryngologists, tonsillotomy versus tonsillectomy, is not within the scope of the paper, except that Dr. Gradle is in favor of tonsillotomy. We have with us to-night a physician who was operated on in a radical way, and he may favor us with a recital of his experiences. I trust that Dr. Gradle's method will prove as successful in the hands of others as it has in his.

Dr. P. J. H. Farrell:—After the lapse of eleven months I still have painful evidence of a tonsillectomy. Personally, I know nothing of the painless method of removing tonsils. We must remember that a tonsillectomy is a surgical operation, and requires surgical training and skill, and I must enter a vigorous protest against untrained men and self-appointed surgeons doing this operation in an amateurish manner. To dissect out a large tonsil and leave in the throat an open cavity that at once is an ideal trap and culture ground for the bacteria that are so prolific in the mouth is not good surgery. No large wound of this class should be left open; the surgeon's method should be to close all wounds and get primary union. No patient should be exposed to the dangers of the infection that is almost certain to ensue by this unsurgical procedure. For good and sufficient reasons I have inquired very carefully during the past six months about the results obtained after enucleation. Some deaths and several very serious streptococcus infections are already upon my list. I am sorry that the title of the paper does not justify me in discussing the methods of operating. Dr. Gradle's paper refers only to the painless method, which I take it, really means the anesthetic to be used. I have used nitrous oxid gas, having the expert services of Drs. Ream and Nevius, with perfect satisfaction, the anesthetic being given through the nostrils of the patient and continued throughout the operation. I take it that the only really painless method of removing tonsils and adenoids is under general anesthesia, ether, chloroform, or gas.

Dr. Noval H. Pierce:—I have come to believe that the removal of tonsils and adenoids requires deep anesthesia. I have gone through the various stages of doing this operation without anesthesia, with cocain anesthesia, nitrous oxid anesthesia, and ethyl chlorid anesthesia, and have come to the conclusion that the only satisfactory anesthesia is a deep surgical anesthesia by means of chloroform or ether; on account of the lesser danger of ether I prefer it to chloroform. I have gone over my cases lately and find that even with deep anesthesia and deliberate, careful operating there is a recurrence of the adenoids in at least 5 per cent. of the cases, and I believe that in the cases I operated on before I reached the conclusion regarding anesthesia there was a recurrence in from 10 to 15 per cent. Therefore, I believe that the more carefully we operate, and that necessarily implies the more deliberately we operate, the better will be our results as regards recurrence. This applies not only to the adenoids, but to the tonsils. I have operated in a great many cases under deep anesthesia, with the patient in the lateral recumbent position; I have taken all the time necessary for careful and complete removal, and there have been no complications as regards hemorrhage or



otherwise. Regarding tonsillectomy versus tonsillotomy, I believe that we should cut out all the diseased tonsil tissue we can without placing the patient in danger of extensive hemorrhage or sepsis. I agree with Dr. Gradle that the lower pole of the tonsil is the least offensive; in fact, I believe we can, in a large number of cases, safely leave that portion of the tonsil, and by doing so we obviate the danger of a violent hemorrhage, which may result from cutting a loop of the lingual artery. That frequently projects into the base of the tonsil. Removing as much of the tonsil as possible does not mean going beyond into the tissue surrounding the tonsil, and that is another reason why we should operate under deep anesthesia and take plenty of time. The dissection of the tonsil should be as exact and as painstaking as the dissection of any tumor, and that can not be done except under deep anesthesia when the pharyngeal reflexes are abolished. You can, if you like, use cocain to increase the anesthesia of the pharynx, and use adrenalin to decrease the hemorrhage, but the main thing, in my opinion, in the majority of cases, is to have a deep general anesthesia to completely and successfully remove the tonsils and adenoids.

Dr. J. Holinger:—In a quiet child, one that is manageable, you can do adenoid or tonsil operations without anesthesia. In an excited unmanageable child you will have trouble unless you have the child almost at the danger point under general anesthesia. The main effort of the child is not to open the mouth when it sees the instrument. I am sure that by attempting to pass a needle repeatedly into the mouth for the purpose of injecting the tonsil, the child either will run away or it will refuse to open the mouth. I have used bromid of ethyl in a large number of cases with very satisfactory results, and I have no reason to change. As to the final results, it has become my conviction that if you succeed in establishing nose breathing after the operation you will have a good result. The parents and the patient have to help and break the patient of the old habit, otherwise there will be a recurrence. Recurrences are not due to incomplete operation, as was shown in a case where I operated for the second time, and I found out afterward that, although the boy was breathing through the nose, he spoiled his stomach through improper feeding, and the next recurrence disappeared spontaneously after the stomach trouble was corrected. Recurrence is not at all a criterion as to whether the operation was done properly. After doing what I thought was a poor operation I had very good results, and after doing a very good operation, as I thought, I had no results at all.

Dr. F. D. Reed:—It may not be generally known that our methods of administering nitrous oxid have improved much in the last few years. I have done this work for a number of years and I have never had an accident. It is not necessary to hasten the operation, as was done formerly, because we can produce continuous anesthesia without the assistance of the patient. The inhalers now in use are admirably adapted for prolonged anesthesia. Only recently I had a lady 92 years of age under nitrous oxid gas for one hour and ten minutes; however, in combination with oxygen. She consumed 100 gallons of oxygen and two gallons of nitrous oxid. The patient was in the upright position.

Dr. C. M. Robertson:—The diseases of the tonsil we are called on to treat do not always occur in the form of solid growths situated in any particular place in the nasopharynx. Some of the tonsils are spread over the entire surface and some are situated over the Eustachian tube. These are particularly dangerous. If we remove an adenoid and leave any hypertrophied tissue in the remainder of what is termed Waldeyer's ring, there is likely to be a recurrence. If we clean out the faucial tonsil, there will not be a recurrence. As regards the injection of cocain and adrenalin, I think that it is very difficult sometimes to undertake that, because of the flabby character of the adenoid tissue. If you push a needle into an adenoid or a soft tonsil, the fluid will flow out on the surface. If the tissue is fibrous and hard, it is dangerous to operate under local anesthesia. Fibrous adenoids are sometimes supplied with very large blood vessels, and these structures must be removed with the snare, and very slowly, or the patient will succumb to hemorrhage. My experience has taught me that hemorrhage is more



profound when cocaine and adrenalin are used than when these agents are not used. The operation is very nice; you can see what you are doing and there is no hemorrhage before an hour and a half afterward, when the effects of the drug wear off. Then there is more hemorrhage than with a plain cutting operation. As regards the adenoid tonsil, I think that anybody can get enough anesthesia with a few whiffs of nitrous oxid gas or ethyl chlorid, or a combination of the two. I published an article some time ago in which I described an apparatus for the use of ethyl chlorid gas. The gas was put up in metal containers, and the heat of the hand generates the gas. The patient can be kept anesthetized as long as you wish. I have kept the patient under for half an hour without their exhibiting any distressing symptoms. Taking out tonsils or adenoids in the office is a vicious practice, one that should be condemned. The patient sometimes has a violent hemorrhage, and is likely to die. I make it an invariable rule that the operation must be done in a hospital, where the patient remains over night, so that he can be under observation. For the removal of the faucial tonsil I have gotten the best results from primary anesthesia with ether, the talking anesthesia, where the patient can spit out blood instead of having it go into the lung. The operation requires only a few minutes, and the patient is then able to sit up. I give him a gargle of peroxid and water, which stops hemorrhage. If the hemorrhage is severe, I hold a tampon saturated with turpentine or boiling hot water in the cavity.

Dr. Gradle (closing the discussion):—In order to reply intelligently to the friendly criticism made to-night, I must distinguish between operations on adenoids and tonsils. In adenoid operations I can state positively from an experience of over twenty-five years that anesthesia is of no benefit whatever except in the case of an absolutely unmanageable child. With tact and firmness ordinary children submit to the operation without real trouble. I always tell the parents that without anesthesia there is no danger, but that with anesthesia I can give no absolute guarantee. I can not imagine how complete relaxation of the patient under anesthesia would favor a more thorough operation than I can do when the child is held properly, even if it is struggling. Nothing can be gained by having the child anesthetized for any length of time or by reintroducing instruments any number of times. I get out the entire tonsil and I can show it. A recurrence is exceedingly rare. I judge of the efficiency of the operation by inspection if feasible, or by palpation of the pharynx after healing. The removal of the pharyngeal tonsil will always give satisfactory clear nasal respiration if it is the only factor that interferes with nasal patency. But suppurative rhinitis, some sinus involvement, hypertrophic rhinitis or a deflection of the septum may be present as a complication in occasional instances as their occurrence is favored by the long persistence of adenoids. In the case of such complications a perfect operation alone will not relieve the patient completely. In dealing with the faucial tonsils I admit that anesthesia can not always be discarded, because the struggling of the child makes the operation unsatisfactory. But if the patient has confidence proper cocaineization by injection will obviate the pain completely if not much traction is used. There have been some opinions expressed to-night about the necessity of very radical work on the tonsils. That does not apply to every case. Many persons have large, firm, but pale tonsils which never cause disturbances and require no removal. We judge of the mischief which a tonsil has done or can do by the history of attacks of sore throat, by the angry red appearance of the tonsil and the offensive contents of its crypts and the enlargement of the corresponding lymph glands. When the indications are present we should remove the whole upper part of the tonsil as far as there are crypts. By sparing the lowest, and close to the tongue, if this be hypertrophied, we lessen the chance of troublesome bleeding and still accomplish just as much for the patient. The cocaine and adrenalin injections facilitate operating by lessening the bleeding and have never given me any after hemorrhage.

Dr. D. N. Eisendrath read a paper on "Subphrenic Abscess Complicating Appendicitis."

## DISCUSSION ON DR. EISENDRATH'S PAPER.

Dr. M. L. Harris:—This is a very serious condition and the mortality has been high, much higher than should follow as the result of the conditions found, provided we can diagnose the condition early. These cases should be divided into two classes, those in which the abscess is primary, and those in which it is secondary. The abscess from an acute appendicitis may form primarily in the subphrenic space. The first case of this kind which I saw was of this class. I was asked to operate for empyema and found a small, circumscribed empyema. I drained the space, but the patient received no benefit. I did a secondary operation, going through the diaphragm into the subphrenic space, and found a large collection of pus. The patient died. At the autopsy we found that the primary trouble has been an acute appendicitis in an undescended appendix, the apex of which lay between the inferior and posterior border of the liver and diaphragm and the primary abscess was in the subphrenic space. The second variety in which the abscess is secondary is usually chronic or subacute in character. We operate for an acute suppurative appendicitis, but after draining the abscess cavity the patient's improvement is only temporary. The temperature may go down for a few days; then we notice that the patient's recovery is interrupted. He gets worse. His temperature rises, the leucocytosis decreases, only to rise again in a few days to where it was in the beginning. The clinician can not account for the condition; he examines the abdomen for a secondary abscess, but fails to find it. If, however, we find physical signs referring to the region of the liver, we must think of subphrenic abscess and begin the exploration. We should never neglect to use the needle in these cases. There is no danger, provided the needle is inserted from the side or from behind. The physical signs and symptoms of value in the diagnosis have been grouped under the name of Leyden's rules. The first of these rules is a history of abdominal trouble; the second, absence of the history of symptoms referable to the respiratory organs; the third, absence of bulging of the thorax or the intercostal spaces to the extent found in an empyema; fourth, absence of displacement of the heart, which is almost always present in empyema; fifth, a depression of the zone of vesicular breathing on deep inspiration. When these signs and symptoms are present, we should suspect subphrenic abscess. I want to emphasize the escape of considerable foul gas without any pus on tapping as a sign of great value in the diagnosis of subphrenic abscess. When the diagnosis is made, operation is absolutely necessary.

Dr. A. D. Bevan:—It is important that this subject be thoroughly understood by the general practitioner, because some cases of appendicitis die as the result of this complication, particularly because it goes unrecognized. I think it fair to say that about two-thirds of these patients might be saved if the condition were recognized early, and an early operation was done. I want to emphasize one point in the surgical treatment of this condition that has not been emphasized sufficiently, and that is not to allow the original focus of infection to remain when the abscess is opened. To my mind, the most essential thing in many of these cases is the removal of the appendix in addition to the draining of the abscess. I have had two patients die where this was not done. The appendix was perforated, and a fistulous tract extended upward from the appendix to the subphrenic space. Above the subphrenic space was a huge empyema and extending downward into the cul-de-sac of Douglas was an abscess. The subphrenic abscess and the empyema were drained, but the patient died. Postmortem showed that if the appendix had been removed at the time the original operation was done the patient would have recovered. In this connection I want to call attention to a very admirable method of exposing the space between the diaphragm and the liver which was devised by Dr. John R. McGill of Manila, and was described in an article which appeared in a recent issue of the *Journal of the American Medical Association*. In opening the subphrenic abscesses, if the condition of the patient is bad, I strongly advocate the use of nitrous oxid anesthesia rather than ether or chloroform anesthesia.

*Regular Meeting, held Oct. 16, 1907.*

A regular meeting of the Chicago Medical Society was held October 16, with the president, Dr. Henry B. Favill, in the chair. The following papers were read in the Symposium on Chicago's Milk Supply: "The History of Milk Inspection in Chicago," by Dr. J. F. Biehn; "Bacterial Standards," by Dr. A. Gehrman; "Production of Certified Milk," by Dr. I. A. Abt; "Hopes of the Chicago Milk Committee," by Dr. M. P. Hatfield. These papers were discussed by Drs. W. A. Evans, F. S. Churchill, C. S. N. Hallberg, J. C. Cook, I. C. Anker, E. Davis and Dr. Biehn and Dr. Hatfield in closing.

#### THE HISTORY OF MILK INSPECTION IN CHICAGO.

JOSEPH FAVIL BIEHN, M.D., CHICAGO.

Director of Department of Health Laboratories; Professor of Bacteriology and Clinical Pathology Chicago College of Physicians and Surgeons.

In the fall of the year 1892 the first milk ordinance was passed by the City Council. Mayor Washburn was the prime mover and force behind its passage. It also received the sanction and encouragement of the Chicago Medical Society. This ordinance created a Bureau of Milk Inspection and provided for the collection and analysis of samples and the licensing of stores and dealers in milk. Of the first 500 samples collected and analyzed, 75 per cent. were found to be below the requirements of the ordinance. Only 8 per cent. of a similar lot of samples collected at the station as the milk arrived from the country were below grade, a significant discrepancy. During the first year 10,759 samples were analyzed, 4,053 of which were below grade. The analyses at this time were made in the rear of a drug store at Thirty-ninth and Cottage Grove avenue, and later some were also tested in the chemical laboratory of the Woman's Medical College. The chief faults to be found with the samples collected during the first year were, insufficient fat, owing to extreme skimming, and the addition of coloring matter. After the passage of the first ordinance, many of the milk dealers felt that their business had in some way been attacked, and they formed three organizations, one representing each section of the city. They demanded duplicate samples and had these tested by their own chemist, and they began an exhaustive study of the subject. This gradually led them to acquire a knowledge of the character of the milk they received, and the milk dealers in Chicago are now remarkably well posted in their business and know the kind of milk they deal in. On Sept. 18, 1893, a supplementary ordinance was passed which brought the Bureau of Milk Inspection under the control of the Commissioner of Health and created a laboratory for the Department of Health, in which analyses of milk, water, ice, and all foodstuffs should be made and other inspections carried out, as might be deemed advisable. During 1894 the laboratory was moved to the City Hall and a fair equipment was installed, and from February on the work progressed very satisfactorily. The addition of color was prohibited and an ordinance passed requiring skimmed milk to be tagged; all skim milk must now be in red cans. During this year 12,093 samples were collected, 4,320 of which were below grade. There were 165 suits entered for various violations, and 54 judgments were entered against violators.

Then was begun an inspection of the depots and platforms and conditions under which milk was brought into the city. This stimulated the railroad companies, and soon one after another installed a milk agent in their service whose sole duty was to look after the manner in which milk was shipped and to make the business more remunerative. Now all the large railroad companies have many men employed in the shipment of milk. Cars are built especially for this purpose and trains are made up in the country which carry nothing but milk and are known as milk trains.

During the latter part of 1894 considerable opposition, which had been developing for some time, to the enforcement of milk inspection, culminated in an attempt to show that the work was of no value and that the department was not enforcing the license regulations. As a result the council failed to appropriate



money for the inspection of milk during 1895, and it was only after an energetic appeal by the Commissioner of Health that the appropriation was later allowed.

During the year 1895 the weekly percentage of below grade samples varied from 45 per cent. in January to 60 per cent. in August. Coloring, after removal of the top quart, or cream, was general. A crusade, later known as the "milk crusade," was begun in the early part of August, and as a result the percentage of below grade samples fell to an average of from 5 to 18 per cent., and in 1896 it averaged as low as 2 to 8 per cent. during the entire year.

After the passage of the first ordinance and up to 1904 the amount of money required for the enforcement of the provisions regarding milk had not been increased. The agencies brought to bear upon the question outside of the Department of Health had, however, grown steadily each year, until the work for the betterment of the milk supply had assumed large proportions. Some time before this there was organized a Milk Shippers' Union, made up of dairy farmers, having a membership of about 3,500. This was a useful organization and its business was primarily to look after the dairymen's end of the bargain, to prevent his being swindled by unscrupulous dealers in the city, but it has also tended to improve the character of the herds, and the conditions of milk production generally. This organization prints and circulates a monthly paper devoted exclusively to the interests of dairymen.

In 1903 the Chicago Hospital Society organized a milk commission, raised a fund, and conferred with the best talent of the city and country in discussing the proper production and distribution of milk. A pasteurizing plant was installed and daily distributions of a milk safe for children to drink were made to the poor.

During 1904 the City Council granted an appropriation for four dairy inspectors, whose business it was to inspect dairies and instruct dairymen in the elements of clean milk production in the country, and by personal visits and distribution of leaflets and other literature, teach how best to produce and preserve this essential diet of the young. During the month of April, 1904, an inspection of the dairies in the city was made, and 29 per cent. of them were abolished owing to the filthy and insanitary conditions that prevailed. During the first week of inspection in the country by the dairy inspectors, of 88 dairies inspected, 36 per cent. were excluded from sending their milk to the city. During the second week, of 135 inspections, 21 per cent. were excluded from the city. This clearly demonstrated the necessity of an inspection of the dairies and farms that were producing the milk.

By this time the general average of samples below grade was about 7 per cent. and conditions in the city were fairly satisfactory, but there was no way of enforcing cleanliness in the country. These results of city inspection had already accomplished a great deal in the saving of infant and child life. During the five years previous to 1892, when the first milk ordinance was passed, there had died 50,154 children under 5 years of age, an annual average of 96 in every 10,000 of the city's population. During the five years ending Jan. 1, 1904, there were only 40,549 deaths of children under 5 years, an annual average of 46 in every 10,000 of a total population averaging 630,000 more than in the early period. During 1891 there were 12,901 children's deaths, 110 in every 10,000, whereas during 1903 there were 7,871 children's deaths, only 42 in every 10,000. The child death rate has been more than cut in two in the first twelve years of milk inspection, and it has been again reduced over 40 per cent. since that time.

During the year 1904, when I first came into charge of the Health Department Laboratories, the first systematic bacteriologic examination of the city's market milk was made. Dr. Gehrmann, my predecessor, had made a number of bacteriologic analyses at various times and pointed out the fact that a mere chemical examination was not sufficient. During this year 5,838 samples were examined bacteriologically. The number of bacteria ranged from 20 to over 10,000,000 per cubic centimeter. Of a series of 1,000 samples purchased in the open market, only one-twelfth of 1 per cent. could be demonstrated to contain pathogenic bacteria. While the milk supply from a chemical standpoint was



satisfactory, it was decidedly not so bacteriologically. Over 80 per cent. of the samples contained more than the usual standard of 500,000 bacteria per cubic centimeter. Mere numbers, however, do not constitute the chief danger, but some of these bacteria may be pathogenic, and in this manner an epidemic may result.

As there was no bacteriologic standard for milk fixed by law, and owing to the inadequate force in the laboratory, making the bacteriologic examination of every sample of milk impossible, the causes producing this condition of the milk supply and the means of combating them, were made the subject of a careful study, and the inspectors were instructed to pay special attention to the sanitary condition of the dairies, and also the utensils used in the handling and storing of milk. During this year the inspectors collected 17,073 samples and made 7,698 sanitary inspections of depots, 77 of which were abolished. There were 288 dairies within the city limits, 20 of which were abolished owing to insanitary conditions. Over 5,000 cans were returned to dealers from the platforms because they were not thoroughly clean and dried, and several hundred rusty cans were destroyed.

During 1903 24,926 samples were analyzed, 5.82 per cent. of which were below grade. During 1904, 25,243 samples were analyzed, 6.3 per cent. of which were below grade. During 1905, 25,727 samples were analyzed, 5.8 per cent. of which were below grade. During 1906 50,939 samples were analyzed, 7.1 per cent. of which were below grade. These figures show the total number of samples below grade for the last four years varies from 5 to 7 per cent. This represents a fairly satisfactory condition, as far as a chemical standpoint is concerned, when we realize that there is one inspector for every 600 milk dealers, and that each inspector covers a territory of approximately twenty square miles.

The child mortality since the establishment of the laboratory shows a reduction of nearly 70 per cent., as a result of a general supervision of the milk supply in the city and the enforcement of ordinances that relate principally to the chemical constituents of milk. The sanitary inspection of milk depots has greatly increased until at the present time it is the principal occupation of the department.

It was now found that the 7 per cent. of samples below grade was due in a great measure to the shortage of milk, caused by the extreme dry weather during July, August and September, 1906. This led to a watering of the milk in many instances by the dairymen, in order to make up for the shortage. The dealers also resorted to various methods to make up the deficiency. The large firms stopped supplying the small stores, and a number of small peddlers were forced out of business. The shortage was fully 40 per cent., and skimmed milk disappeared from the market, while buttermilk, which was in great favor, was reduced to one-fourth the demand.

In April, 1895, the City Council passed the department ordinance requiring the dairyman to seal his cans before he ships them into the city. This has enabled us to detect the offender in a great many instances. Formerly, if a sample of milk taken from a city dealer was found to be watered, the city dealer blamed the producer. The producer blamed the railroad man, claiming that he removed the cream and added water, but by the enforcement of this ordinance requiring the sealing of cans this watering of the milk has been reduced over 70 per cent., the department now being able to place the responsibility.

The wonderful improvement in the city's milk supply from a hygienic standpoint has resulted from the work of the four dairy inspectors, who were appointed June 10, 1904. During this year they visited 3,146 dairies supplying milk to the City of Chicago, and reported on the sanitary condition of the premises, kind of product, methods of handling, etc.

In 1906 the number of dairy inspectors was increased to ten.

This was an entirely new procedure on the part of the department, and various objections were immediately raised by the dairymen, some of them even threatening the inspectors. This for a time seemed an insurmountable obstacle owing to the fact that many of these dairy farms were in another state, therefore we had no jurisdiction over them. But if a dairyman refused inspection, or refused to com-

ply with the rules and regulations of the department, his milk was returned to him, or destroyed on its arrival in the city, and he soon found that it was to his interest to comply with the regulations of the department. In this way we have been enabled to enforce regulations in states that do not require any such regulations in their law, as an instance of which, the dairy laws of Wisconsin permit the feeding of wet malt to milch cows, but our rules and regulations do not permit it, and we destroy or return the milk from every farm where this malt is fed.

When the crusade against wet malt was started, determined opposition at once developed. Injunctions against the department were sought and the cases were appealed from the criminal to the appellate court. Although the offenders employed experts and were backed by considerable capital furnished by the brewing industries, the department won its case and the appellate court of Cook County sustained the ordinance and affirmed the exercise by the Department of Health of the police power for the protection of health against impure, unwholesome and poisonous food. During the first year of dairy inspection 19 per cent. of the dairies shipping milk to Chicago were feeding wet malt. During the last year only a little over 3 per cent. were feeding such food.

While the inspection of dairies has had a very good effect and has resulted in many sanitary improvements, the condition of the dairies supplying Chicago with milk is still far from satisfactory. No rigid set of rules could be immediately enforced as these would entail considerable work and expense on the part of the farmers, and if we order a new milk house, or suggest some other improvements, he pleads for delay, or cries out in alarm that he is being persecuted and driven out of business. The railroads claim they can not change their present methods; they refuse to ice the cars, and claim they can not run their trains at any other time. So it is, opposition is met with on every hand. But notwithstanding all this, pure milk can be supplied, and sanitary regulations can be enforced if the proper measures and sufficient energy are brought to bear.

In the history of the inspection of milk in Chicago, the principal defects in the supply as they arose were about as follows:

First, and commonest, is what is known as "skimming," or removing the top or cream. Usually at the same time coloring matter was added to give the milk a rich appearance. Neither of these are very objectionable from a health standpoint. They are practically only questions of fair trade.

Next in frequency is the addition of water. This might be considered doubly dangerous, owing to the fact that while the addition of water deprives the milk of some of its nourishing qualities, the water added is usually not pure, but contains many bacteria, some of which may be pathogenic. The popular idea that chalk, salt, and other substances are added to milk is unfounded. The records of the department show a number of instances in which starch has been added to the milk, and in which condensed milk has been added to cream. Occasionally preservatives are found, the principal one of which is formalin. This was first detected in the Chicago market milk in the spring of 1900. Prosecutions and heavy fines were at once imposed, and led very soon to the abandonment of the use of this preservative by the dealer. It soon became evident, however, that the city dealer was not the only criminal. Much of this poisonous adulteration was done by the dairymen. Prosecution of these non-residents was slow and uncertain, and all samples found to contain formalin at the receiving platform were immediately confiscated and poured into the nearest sewer opening. The following is a number of samples containing formalin per 1,000 samples examined: 1900, 15.37; 1901, 8; 1902, 3.1; 1903, 1.37; 1904, .99; 1905, .53; 1906, .06. During this time the samples have increased over 200 per cent. The number of samples containing formalin found last year was three. These were found to have been adulterated by the producer, who had recently entered the milk-shipping business and was not aware of the poisonous qualities of this substance, or that its addition was prohibited by law.

During the present year the department has been paying more attention to clean milk, and to cases of infectious diseases associated with the milk supply.

Every death from intestinal diseases in children is investigated. The principal work of the inspectors has been the sanitary inspection of the milk depots in the city and the dairies in the country. The rules now in force are much more stringent than those formerly used and they are being improved and new regulations added continually. Bacteriological examinations are now being made of all suspicious samples and the water used for washing cans and watering cattle on the various dairy farms is being analyzed in the city laboratory. This was inaugurated by the present Commissioner of Health and amounts practically to a crusade for "Clean Milk," which is properly a health problem. The enforcement of regulations concerning the amount of butter fat, etc., in milk properly belong to the State Food Commission, but were originally given to the Health Department, as they were the first in the field. The State Food Commission did not undertake the analysis of milk until 1898.

I should probably be wrong in saying that there is hardly a pint of milk sold in Chicago exactly as it comes from the cow, notwithstanding the years of inspection and regulation. But I am sure that at least nine-tenths of it is not in its perfectly pure, natural condition. Recent investigations that I have made have proved to me that nearly all the dealers, large and small, remove part of the cream. Most of them separate the milk to remove the dirt and other foreign material. Many of them make a pretext of pasteurizing in order that the milk shall keep better, a purely commercial proposition with them; and the farmer realizing that his milk will be separated and pasteurized, has fallen into habits of carelessness and uncleanness. These conditions tend to retard progress in the right direction. The ideal milk supply is what is known as dairied milk, produced under careful supervision and personal cleanliness and hygiene of all concerned in its production and handling. Such milk can be produced only under the direction of a scientifically trained management, and must of necessity command a higher price than ordinary market milk not produced under such favorable conditions.

The time when Chicago's milk supply will be dairied milk is a long way off, and in the meantime I believe that efficient pasteurization, associated with rigid inspection in the country, is the solution of the present problem. This, of course, is not ideal, but is a step in the right direction, and an improvement over present conditions. If the milk is really pasteurized the pathogenic bacteria will be destroyed, and this will give us a safe supply until dairy inspection has been so improved that the milk will be produced in a cleanly manner from healthy cows and properly attended to until delivered to the consumers a pure, untreated natural milk.

The objections of some that sterilized milk produces scurvy is unfounded. Dr. Varilt of Paris, has been feeding it to thousands of babies during the last ten years and has never seen a case of scurvy. It will not agree, however, with all children. About 4 per cent. of the babies become anemic and constipated, and its use in these cases must be discontinued.

I wish to state, in conclusion, that while there is no reasonable doubt that a very large share of the cause of infant mortality, especially in the hot months, is due to unwholesome milk, it is not the only cause. A high infant mortality is an exceedingly complex matter and the result of many forces. Industrial conditions, female labor, disinclination or inability of mothers to suckle their young, and the use of artificial foods and impossible sanitary surroundings have much to do with it. The homes and habits of the poor, especially those in the tenement districts, are impossible barriers; home contamination will nullify even a perfect milk supply.

#### DISCUSSION OF THE SYMPOSIUM ON CHICAGO'S MILK SUPPLY.

Dr. W. A. Evans:—A great deal has been done in Chicago during the last fifteen years toward improving the milk supply, and that great deal has borne fruit in a greatly reduced mortality among the children. It is true that the good this inspection has done in reducing the death rate was responsible for a somewhat



sharp drop, and that since that time there has been a relatively even run. There has not been much decrease in the last several years. The mortality among children dying from intestinal disturbances is somewhat similar to the mortality from diphtheria. Immediately after the introduction of antitoxin there was a sharp drop in the death rate from diphtheria. That drop continued for a few years, and since then the death rate has been about the same. It seems to me that the time is about here when something as radical should be done for diphtheria as was done when antitoxin was launched, so that there may be another drop in the mortality. I believe this to be possible. I also believe that the time has come for taking a radical step with regard to the milk supply, so that there will be a further drop in the death rate among children under 2 years of age.

I endorse everything that the Milk Commission reported. We are arranging now for the standardization of certification, so that the term certified will mean something. The certification of milk will count for something if physicians and people have confidence in it. There is a great need in this community for certified milk, and I believe that it would do great good if we had certified milk or even inspected milk.

The particular thing I wanted to speak to was that group of people which, in my judgment, will not be reached by certified or inspected milk for a good many years to come. A few days ago a woman came into the department, terribly enraged, because we had excluded one of her children from school for having lice. She said that she had raised twelve children; they all had lice; they were all healthy children, and she questioned the right of the department to keep them out of school. When we discussed this milk question in the Milk Commission, one man, a practical farmer, said that he remembered when milk was produced without supervision and control, and there was less disturbance about the kind of milk produced then than now. We jokingly told this man that then children were plentiful, and it did not matter if some of them died, but now they are scarce and we must take care of them.

It is the opinion of men in the milk business that there has been no particular increase in the production of milk within the last twenty-four months. Probably milk is not produced as carefully now as it was three years ago. The labor question comes into consideration. It is difficult to get help, especially in a business so trying and exacting as the milk business.

As has been suggested, certified milk is a dear proposition, and the great bulk of milk is and will be produced on the farms as a secondary factor of farm production. If we were to limit the milk supply of Chicago to milk produced by dairymen, on well-equipped dairies, the babies would have to drink something else. No one can produce a certified milk except a person who has had training in bacteriology, either a trained nurse or the graduate of an agricultural college, or any other person who has studied bacteriology. Such milk can not be produced at any price under 12 cents; in fact, I believe it can not be produced at a profit under 14 cents. It will be impossible to have this kind of milk unless the people will pay for it.

I want to read a few figures showing where the babies are dying in Chicago. The death of every infant under 2 years of age occurring during the past summer has been investigated carefully by the department, both with regard to the milk supply and the sanitary conditions. We are getting all these data together and they will be published soon. We have also looked into the milk and ice supply of every case of typhoid, and no doubt this information will be of value. The city is divided into fifteen sanitary districts, and in each district are included portions of the city in which the sanitary surroundings and the sociologic conditions are uniform.

Dr. Evans (continuing):—The other day thirty or forty milk dealers were fined for selling milk below grade in butter fats and solids, and when these men came up with their clothing and hands dirty, I saw very clearly indeed that good milk and clean milk could never be produced by people such as these. The heart of the trouble will never be reached until it is made impossible for people as dirty as



these to handle a product so capable of producing sickness and death as is milk. I do not yet see clearly in my own mind what we are going to do with the milk situation in this city. It is not so largely a proposition that concerns the gentlemen who have spoken to-night, so far as their immediate practice is concerned, because they are taking care of babies living in districts in which only two—fourteen—sixteen babies are dying during the year, but we must find a solution that will be effective in those districts in which 900 are dying, from the use of improper milk, and a very considerable part of this death rate can properly be charged to milk, probably about 50 per cent.

It is not possible to get these people to pay 14 cents for milk. I am satisfied to leave the question of adult milk where it is. It is satisfactory in the main, if we can get rid of the typhoid and the tubercle bacilli. The milk for children needs to be cared for better, but the great problem is the milk for the baby, especially the baby of the poor. They are the people who do not want and who do not understand the necessity for pure milk, for clean milk, nor do they want to pay a high price for milk. What are we going to do for those people? That problem is not so easily solved.

I wish that those of you assembled here will go back to your branch medical society and your family practice and try to drive home this proposition: That pure milk is the price that must be paid for the health of the infants of this city. It can not be solved by any dictum that comes from the health department or from any other department. It can not be solved until the people themselves can be made to see the vital necessity of its solution, and such intelligence and such education can only come through you, through your efforts in the branch societies.

Dr. Frank S. Churchill:—This question can be pushed better by physicians than by any other body of men. It must be a campaign of education, not only among the poor ignorant mothers, but also among the so-called "more intelligent" classes. They must be taught that they can not get something for nothing, and that they must pay a good price for good clean milk; not less than 10 or 12 cents a quart. I do not believe that parents are unwilling to pay a large price for milk for their babies. They rarely object to spending money on their babies, and they are willing to pay a high price for milk if they can be assured that the milk is clean. But they are not willing to pay a high price for milk for themselves. They must be educated up to the point that it is impossible to produce a clean milk at a low price.

With regard to the education of the poor, ignorant mothers, that, it seems to me, is one of the most hopeless aspects of the problem. We all know how wretchedly the children of the poor are cared for, and how carelessly their milk is handled, even though it may have entered the home from a reliable source. I believe that one of the most potent forces in this work is the Visiting Nurses' Association, and if we will avail ourselves of these nurses by getting them to go into the homes and instruct the mothers how to care for milk, I think much good will be accomplished. Education must be carried on in these directions, by nurses and by physicians.

The Children's Hospital Society is supplying a very small number of babies with a good clean milk and it has stations scattered all over the city. We are only too glad if you will send your poor babies and infants to these stations, writing out the formula of milk you want the baby to have, and it will be furnished.

One point in Dr. Biehn's paper I have often thought of. We are very apt to attribute the falling off in mortality among infants to the improved milk supply. There is another factor which may enter here, and that is the temperature. I think we have the general impression that our summers have been colder in recent years than before. I believe that this has played some part in the reduction of infant mortality.

Dr. C. S. N. Hallberg:—We should endeavor to have the public realize what a complex, delicate substance milk is. Milk must be handled with great care, and not like water or ordinary liquids. There has been a great improvement in the quality of milk within the past few years, but I believe that it would be well

if milk were bottled in the country. Milk should not be sterilized, but everything connected with the process of getting the milk should be sterilized. Not enough stress is laid on the thorough scalding of the pans, bottles and other containers, and that it is wrong to sterilize milk. Even pasteurization modifies it. It makes the milk less digestible, and sterilization makes it unfit to feed to the child. The late Dr. Christopher had many cases of scurvy in the Lincoln Park Sanitarium due to the use of sterilized milk. Every little while we read in the daily papers about some institution starting depots for the distribution of sterilized milk. To give that milk to a child would be as useless as to give a hungry man a stone. Pasteurization may be necessary and permissible, but the public should be made to understand the difference between sterilization and pasteurization.

With regard to the price of milk, let me call your attention to a recent report as to the food value of some of the patent or proprietary products prescribed by physicians to take the place of milk, such as the liquid peptone preparations. Examination has shown that they do not represent any greater food value than milk, volume for volume, and yet the public does not object to paying a dollar for a pint bottle of some of these preparations.

I believe that all milk in the city ought to be put in thoroughly sterilized bottles in the country and hermetically sealed. That would make the work of inspection easy and efficient.

Dr. J. C. Cook:—I do not wish to go on record as advocating pasteurized milk. I have distributed from one dispensary in a little over a year 70,000 bottles of milk, and there has not been a single case of scurvy from that milk. The children have been watched carefully. No one in the commission opposed the pasteurization of milk more than I did, with the hope of getting a clean raw product. Since this seems to be impossible, pasteurized milk is fed to these children, and it is furnished at a price within the reach of all. My patients are willing to pay for milk what it is worth, when they can be assured that they are getting good milk. I do not think that there is any question about that. When the state authorities can furnish a clean, wholesome milk, the better part of the community will pay for it.

Dr. I. C. Anker:—I wish to say a word about cheap milk production. I have attended an agricultural college and they make quite a point of what is known as the efficiency of cows. It is well known that a vast number of persons engaged in milk production are producing milk at a loss, and the reason is that they do not know how to breed cows. They can not differentiate between a good cow and a poor one. This fact is evident to every one who has studied the bulletins issued by the agricultural institutions. They show that many cows are being milked with profit to the owner of about 1 cent a week per cow. The milk producer does not understand feeding of his animals. In order that a man may derive good profit from his milk, he must have efficient cows that will produce each about 34 pounds of milk per day if properly fed. I have visited some of the dairies around Elgin, with Professor Frazer, the chief of the dairy department of the University of Illinois, and we found that of fifteen dairies only two were conducted with adequate profit. In one dairy they were getting only 16 pounds of milk per day per cow. I have also visited dairies in Indiana, and found the same conditions. These dairy-men do not breed any milk cows. They buy cows on the open market, and any calves that they may have are sold for veal as quickly as possible.

I believe that it is true that the problem of cheap milk production depends mainly on the kind of cows the dairyman is keeping, that is, the efficiency of the cows and the manner in which he is feeding them.

Dr. Effa V. Davis:—For the past two years in the institution where I work we have used pasteurized and sterilized milk for our babies and have not had any cases of scurvy. This is true perhaps because we have watched the cases carefully and began prophylactic treatment early. I believe the New York people are working in the right direction and that the danger of scurvy is a minor consideration compared with intestinal infections. In a large city like Chicago it is

impossible to get fresh clean milk from our country dairies that is safe for the baby, as it is too old before the entire daily ration is consumed.

Last summer the milk supply seemed poorer than usual and from pasteurizing we went to sterilizing. Dysenteric affections followed the use of certified milk from the best dairies, and was prevalent all around us among infants bottle fed. This summer I have put some of my patients on goats' milk, and I think people should be permitted by the Health Department to rear a few goats in our many vacant lots. They are not harmful or dirty like cows and the milk is good and wholesome, and most important of all it can be obtained soon after milking. This is done in Paris where goats are milked at the door. Many lives might be saved if this could be done.

Dr. Evans:—The Health Department will favor the rearing of goats and do everything possible to further the use of goats' milk.

Dr. Biehn (closing the discussion on his part):—I found that in the last six years only one death was reported in the Health Department as due to scurvy, and that occurred in an adult. Of course, there must have been cases of scurvy, but the patients did not die.

The Wisconsin Agricultural College has made many observations with regard to the productiveness of cows. Of many cows examined, only one-fourth were found profitable. The discussion has brought out the fact that very few persons realize who the producers of milk are. They are not dairymen. If they were, they would pay more attention to the cows. They would produce milk of proper quality. The farmers supply Chicago with milk, and the milk is only a by-product. The cattle are raised for the market and the milk is sold. The former is the more profitable. The farmers are not making money on the milk they ship to Chicago; in fact, they lose about 3 cents on every can, but they continue to produce milk because they must raise cows, and then there also enters into the problem the question of the fertilization of the land, which is no small item with the farmer who must buy a fertilizer on the market. So that the milk business is a side line. The milking is a part of the chores, and, as a rule, it is the last thing done.

Dr. Hatfield (closing the discussion):—My cases of scurvy from sterilized milk did not die.

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#### EVANSTON BRANCH CHICAGO MEDICAL SOCIETY.

The regular monthly meeting was held in the Avenue House on Thursday, October 31, at 8:30 p. m. This meeting was given over to Dr. Henry B. Favill, president of the Chicago Medical Society, who delivered an address on "Organization, Unification and Solidarity." He said in part:

There was a time when the Cook County Society consisted of a small group of enthusiastic workers, embracing only a small fraction of the great number of physicians of Chicago. In marked contrast to this, at the present time any medical man in the county who wishes to have good standing with his fellows and an honorable place in the community is already or desires to become a member of the society. It has become a great organization consisting of a central society and numerous branches and affiliated societies, with a central council of representatives from each and to the society at large.

The Branch Society: In the branch there are better opportunities for scientific work by members of the profession in general and there are chances for a close fraternalism. On the other hand with the establishment of the branches, there has entered a new factor. In the branch units, each acting and thinking for themselves, there has been a manifest tendency to criticise the conduct of the general society and of the council in particular. It has been claimed that the council is dominated by a clique or autocratic inner circle. Is this true? And if so, how can you prevent it? Organization naturally contributes to politics. Politics implies interest. But it must not go too far. An undue amount of politics creates sedition and the broader endeavors of the society are thwarted.

The way in which to counteract the pernicious thinking or acting of some outer society or branch is to make use of the society franchise and vote on all questions presented to the members. For example, a special order of business for next meeting of the council is the formation of a business bureau or central collecting agency. The branch would better instruct its counselor how to vote on this question.

**Solidarity:** On public questions the profession has not been a strong factor in the past due to the lack of unification of professional effort. The physician is the most intelligent comprehending man in the community on questions of public policy, but it is necessary in order to produce results that we present a solid phalanx and stand together on public measures in regard to sanitation, public relief, etc. There have been many societies and agencies at work in the county, each in its own field doing excellent work, but between them many gaps have been left in matters of public aid and relief. The medical societies may become a great unifying agency for these various activities. We have a good example of what may be done in this respect in the recent operation between the Chicago Medical Society and the Chicago Relief and Aid Association in taking care of convalescents in the first week or two after leaving the County Hospital.

Dr. G. W. Boat presented a case of injury of the sixth nerve, with double vision and herpes zoster, following a blow on the mastoid of the same side.

Dr. Ernest L. McEwen asked for instructions in regard to the establishment of a business bureau. A formal vote was taken which showed that the meeting was decidedly opposed to the measure, there being only one member present in favor of the bureau.

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#### WEST SIDE BRANCH, CHICAGO MEDICAL SOCIETY.

PRESIDENTIAL REMARKS OF A. M. CORWIN, M.D., OPENING MEETING OF WEST SIDE BRANCH, CHICAGO MEDICAL SOCIETY, OCTOBER 27, 1907.

(Abstract.)

Common courtesy dictates that some sort of thanks should be said to you for the honor you have conferred, not necessarily in conventional phrases, but in terms unmistakable, making it plain that no man should take this chair for a year without appreciating the confidence you have expressed in him when you placed it at his disposal. For this confidence he must make good. It would be very comforting if he could feel certain before he sits down that there are no metaphorical tacks sprinkled here, pointed reminders that things are not always what they seem. But he must know that this chair is no soft, upholstered affair, with reclining back, easily adjustable to the whims of indolence.

So I speak for all the other officers in assuring you that we are not afraid of calloused palms, our coats are off, our sleeves rolled up ready for business. For we are pledged to the work of this society, to stimulate a greater interest among the four hundred that make up the medical life of this district; that we may be in fact, as well as in fancy, the four hundred of Chicago, in a professional way.

Is it possible that there should be less demand for active membership in this fraternity (which includes the ladies) where intellect and industry bulk large for honor; where high professional standing is wont to snap its fingers in the face of folly, and material wealth, seldom large enough to be prodigal if it would, is only considered a worthy means to a worthier end, and coin in the long run must bend the knee to character?

Did I say four hundred? It matters little as we march or ride whether we are four or six hundred. There is no lack of cannon to volley and thunder to the right, to the left, in front of us. For the dispensary evil is a long way from settlement; the menace of contract practice is real and growing in some quarters; the professional abortionist is still at large, the specter of graft stalks among us wrapped in the glittering garb of medical commissions. Our State Board of Health is not yet unshackled from those political alliances and dictations which inevit-



ably handicap its highest usefulness; the "quack," the fake healer and all manner of pretenders flourish to keep us busy in our legislative halls. They beat us at the game of politics because of their powerful lobbies, their effective combinations and because doctors are notoriously poor politicians (to their credit, perhaps). But they are also woefully wanting in sensible cooperation where their material welfare is at stake. Does the doctor know and appreciate his wrongs? He does, and goes right on neglecting to right them by the power of that united effort which even the butcher, the plumber and the hod carrier understand how to use for his advantage; that power of united effort which if put forth, say in Illinois by her ten thousand physicians, would be irresistible.

Things have been improving in this direction of late, thanks to that spirit of organization which has been at work in the nation, in the state and in the county. But where did you ever see a disembodied spirit of much value in practical affairs? It has only been as the impulse has dominated the hearts and minds of enthusiastic and able men that organization has accomplished anything. To this spirit and to those behind it we owe allegiance, for selfish if for no other higher reason. The time is ripe for the perfection of our own little precinct organization against the day of need, to-morrow.

Did I say four hundred? If one-fourth of that number of us West Side doctors shall put our shoulders together in right dress and facing front shall continue to move forward in a common cause, the result can not fail to be notable. The influence of such a movement will be more glorious in the last analysis than was that suicidal ride of 600 into the valley of death because some one had blundered. With a deal of individual effort collectively expressed—a deal I say, we have long had a little—this West Side Branch can be the equal if not the superior of any of the branch societies. I make no invidious comparisons, for it is not so much a matter of men as of environment. Situated as we are with this splendid aggregate of colleges, hospitals, dispensaries and libraries at our center, easily accessible from all parts, our advantages are unsurpassed. And we have continued to largely neglect our opportunities for years.

There is, I am certain, a plenty of local district patriotism there in your breast and here in mine, perhaps in large part latent, and the balance dormant. Oh, for some potent hypodermic of self-respect, of pride, of ambition, of philanthropy, of shame to stir us from our lethargy. Our future success, as I see it, as you see it, must rest upon the wise cooperation of the many, not the arbitrary dictation of the few. Our officers must be the democratic representatives of all even to the humblest and youngest practitioner. No man, no clique, no school for anything like selfish interest can long run us, except into the ground.

As for personal animosities, unhealthy ambition, petty rivalries, misunderstandings, fancied or real injuries, injuries inflicted knowingly or unknowingly, and the incompatibilities which are a part of the weave of humanity, I trust we have no more of these foibles than are allotted to the average. But if we must have them and preserve them like some old well-worn household gods to which we have become too much attached as articles of personal furniture to lay upon the shelf, then let us at least when we come here leave these in the outer hall stacked in orderly array like so many mummies. Let us leave them yonder where we also scrape the mud from off our feet ere we enter this temple sacred to the work of those who have clean hands and untrammelled hearts, dedicated to the cause of humanity and of science.

We find among other matters of importance to us, the raising of a fund by voluntary subscription, and reaching every member, in order to relieve the officers, notably the chairman of the entertainment committee, from embarrassment. Each man who enters discussion should be provided with a blank paper that he might then and there or within twenty-four hours write out his remarks and hand them to the secretary. An editorial committee of three is recommended whose duty it shall be to pass upon all papers and discussions, etc., and have full power to edit the reports of society proceedings.

In conclusion, a word concerning our relation to the medical library. Some one has aptly said that the real knowledge of the art and science of medicine is postgraduate. True, the medical college seeks merely to lay our foundations broad and deep, to promote largeness of vision, embracing the principles of our profession. It can do little more in the time allotted. Hospital and private practice concentrate attention and give firmer grasp of detail and technique. Medical societies and teaching enforce the need of literary research and show the value of topical study. But the real opportunity for this work comes only with the library. One hundred years ago there were three medical journals published in this country. To-day the library of the New York Academy is said to keep on file over 1,200 current journals.

How many doctors have either the means to get or the space to shelve even a few of these? Why, even our own *Journal of the American Medical Association*, accumulated, would crowd us into the hall and out of doors. The invaluable complete files of our leading, long-time established publications are growing scarcer. What folly for the average physician to build up an extensive library and what an inaccessible lumber pile it would become without an expensive and laboriously kept index; and yet, as has been suggested, the humblest of us who have access to a library of ten, fifty, a hundred thousand volumes is practical owner of these books without the trouble and expense of their keep. And an insignificant scrawl on a scrap of paper will summon to him the wisdom of the centuries. Neither time nor distance nor the gates of death are sufficient barrier against the coming of those great ones who have made the record of their thoughts immortal.

The transfer of the Medical Department of Newberry to the John Crerar Library in Marshall Field Building, with its 41,000 volumes and 389 journals, is a God-send to those who office down town. And yet, do you know that only an average of 28 to 30 a day, most of these same ones and four or five of these collaborators, patronize that splendid institution? This is 30 out of 3,000 doctors in the city, 1 in 100. On the other hand, something like 10,000 out of the total population of 2,000,000, daily use the public library, 1 in 200. Think of these figures! And ours avowedly a learned profession! The proportion should be many fold greater in our favor. Out in Los Angeles, a city of 260,000, the other day they dedicated a library building valued at \$35,000, containing a nucleus of 5,000 volumes, and considered themselves fortunate. And yet the running expenses of this are paid out of the pockets of the doctors of Los Angeles by subscription of \$1 to \$25 a year. And here we are no mean metropolis out here on the West Side and have two libraries more than twice as large as that. The Quine Library at the College of Physicians and Surgeons and Rush Medical College Library each have some 12,000 volumes and the leading current journals. To them the medical profession is welcome between the hours of 9 and 5 without charge. And a corporal's guard of us has known this or cared to avail ourselves of them.

Friends, if this branch is to take a leading part in the medical life of this city and maintain it, there must be a wider use by us of these universities of postgraduate work. Dr. Osler has finely said, as he has said so many things: "Books have been to me a delight these thirty years; from them I have received incalculable benefits. To study the phenomena of disease without books is to sail the uncharted sea, while to study books without patients is not to go to sea at all." In other words, who ever would follow either without the other must find himself very much at sea.

#### THE CLINICAL STUDY OF BLOOD PRESSURE.

BERNARD FANTUS, M.D., CHICAGO.

Every new method, every new instrument marks an epoch in the advancement of our knowledge. The sphygmomanometer<sup>1</sup> is one of these epoch-making discoveries, which, I believe, is not yet sufficiently appreciated. It is an instrument which

<sup>1</sup> 1. Janeway, Theodore C.: *The Clinical Study of Blood Pressure*. D. Appleton & Co., New York, 1907.

bears the same relation to the determination of blood pressure that the thermometer bears to the determination of body temperature. Before the day of the clinical thermometer medical men had to be satisfied with recognizing the presence of fever by the sensation of heat imparted to their palpating hand; they had to be content with estimating the degree of fever by the degree of acceleration of the pulse. From time immemorial, physicians have appreciated the importance of blood-pressure estimation, but up to the last few years have had to be satisfied with studying it by the touch of unaided finger, with expressing it in general terms, such as high, medium or low, and with considering the frequency of the pulse as the best index of the condition of the circulation. By the aid of the sphygmomanometer we now express in figures even small degrees of variation in blood pressure. We can diagnose with unfailing certainty states of abnormally high and of abnormally low blood pressure, estimate the degree of variation, and observe the effect of treatment.

The sphygmomanometer is no longer a laboratory toy, but an important addition to the outfit of the physician as well as the surgeon. The instrument (e. g., Janeway's or Stanton's) can now be obtained for a moderate price, and I believe no practitioner can afford to be without one. It is so easily applied that any nurse can be taught the use of it; indeed, it should be considered as essential in the outfit of the nurse or the hospital as is the thermometer. In this great hospital (Cook County), for instance, it would not be asking too much to have one or more of these instruments in each ward, for the use of the nurses, who might be directed in properly selected cases, to determine and record the blood pressure, along with the temperature, the pulse and the respiration rate. The additional expenditure of time would be minimal. It is only when used in this way that the sphygmomanometer will give its best results, and our knowledge of its diagnostic, prognostic and therapeutic indications will grow with satisfactory rapidity.

These instruments have yielded by far the most valuable clinical results in conditions of high arterial tension. Normal blood pressure ranges between 100-140 mm. Hg. When we discover a blood pressure considerably above this we have to deal with hypertension, in which case we must distinguish between temporary, permanent and apparent hypertension.

Temporary hypertension is produced by excitement or exertion. These must be eliminated as much as possible. Acute pain, such as renal colic, lead colic, labor pains, causes hypertension; indeed, it has been suggested to use the sphygmomanometer to distinguish between real pain and pretended pain. Drugs, such as digitalis, ergot, camphor, caffeine, strychnin, atropin, nicotine, raise blood pressure, and the influence of these must be eliminated before we can diagnose permanent hypertension. Perhaps the two most potent causes in raising blood pressure temporarily are asphyxia and acute cerebral compression or anemia of the brain. In acute cerebral compression the highest arterial pressure ever recorded in man was found.

Permanent hypertension, which can be distinguished from the temporary form by exclusion and by repeated observation, is due either to kidney disease, to arteriosclerosis, or to vascular hypertony. Chronic interstitial nephritis affects arterial pressure perhaps more constantly than any other pathologic condition. Acute nephritis may or may not raise the pressure. Chronic parenchymatous nephritis probably does not cause hypertension as a rule. However, in all these conditions, uremia is preceded and accompanied by a rise in blood pressure. Hence, in the diagnosis of chronic interstitial nephritis and in the prevention and treatment of uremia the sphygmomanometer is of the greatest possible service.

Sphygmomanometric studies have shown the general impression that arteriosclerosis is always accompanied by increased arterial tension to be erroneous. Arteriosclerosis leads to high blood pressure only when the splanchnic arteries or the aorta above the diaphragm are highly diseased. Arteriosclerosis of the remaining vascular districts does not appear to exert this influence.

In some instances of high blood pressure the hypertension seems, in large part, functional; that is, it is not due to nephritis or to arteriosclerosis, but rather to some narrowing of the blood vessels, the precise nature of which has not thus far been determined. For this condition the term "vascular hypertony"<sup>2</sup> might be proposed. The condition may be due to the habitual presence of poisons in the blood, to the use of stimulants, or to great nervous strain. The continued existence of this hypertension will, in the end, lead to arteriosclerosis and to cardiac changes. Hence the early detection of this condition, in which the sphygmomanometer stands alone, comes to be of the greatest importance for the prolongation of health and life.

The high systolic pressure readings that we get in cases of aortic regurgitation with good compensation might be designated "apparent hypertension," for the mean pressure in these cases may be no higher than normal. While the powerful, dilated heart, in discharging its contents, throws the maximum or systolic pressure high above the normal, e. g., as in one of my cases to 200 mm. Hg., the backward escape of blood through the leaky valve into the ventricle will cause the minimum or diastolic pressure to be far below, e. g., 100 mm. Inasmuch as it has been shown that the mean pressure is somewhat nearer the diastolic than the systolic level,<sup>4</sup> a figure of 130 or 140 would probably indicate the mean pressure in such a case; this is not much above the normal. In a real high pressure case the difference between systolic and diastolic pressure, which has been called pulse pressure, would not exceed much the normal pulse pressure, which is 30 to 40 mm. Hg., though it is usually larger than normal.

In chronic valvular disease of the heart the sphygmomanometer has thus far proved remarkably disappointing; this is, however, probably due to the fact that systolic pressure alone has been extensively studied, while the determination of diastolic pressure has received but scant attention. Thus, while as we have just noticed, the pulse pressure is increased in aortic regurgitation, it is below the normal in mitral regurgitation. Indeed, in combined lesions we can now by the study of the pulse pressure estimate which of the lesions is of the greater importance. Still, we must face the fact squarely that in most cases of heart disease, no matter how bad the condition of the patient or how ineffective the work of the heart, the mean arterial pressure is not below normal. In such cases Strasburger's "blood-pressure quotient"<sup>5</sup> may help explain the condition. This quotient is obtained by dividing the pulse pressure by the systolic pressure, which gives quite a good idea of the work done by the heart in its relation to the peripheral resistance. The normal blood-pressure quotient is about 0.25. In the above-mentioned case of aortic regurgitation the blood-pressure quotient would be 0.50, showing that the heart is doing much more work than normal. In mitral or muscular disease of the heart the blood-pressure quotient is low. Fall of systolic pressure with stationary quotient means less work on the part of the heart. Stationary systolic pressure with fall of quotient means diminished cardiac activity; accompanied, however, by contraction of the peripheral blood vessels, so that less blood flows to the periphery. Despite the proportionately high pressure the tissues will here receive less blood. Thus, the quotient will explain a large number of cases where normal systolic pressure is accompanied by marked signs of cardiac weakness. The study of venous pressure will also be of assistance in understanding these cases.

Chronic hypotension is rare as compared with chronic high pressure. We are most likely to find chronic hypotension in cachectic and anemic conditions, in Addison's disease,<sup>6</sup> and in the condition described by L. F. Bishop as "constitu-

2. Bishop, Louis Faugeres: *Heart Disease and Blood Pressure*. E. B. Treat & Co., New York, 1907.

3. Erlanger, Joseph: *A New Instrument for Determining the Minimum and Maximum Blood Pressures in Man*, Johns Hopkins Hospital Reports, vol. xii, 1904.

4. Erlanger, Joseph, and Hooker, Donald R.: *An Experimental Study of Blood Pressure and of Pulse Pressure in Man*, Johns Hopkins Hospital Reports, vol. xii, 1904.

5. Strasburger, J.: *Zeitschrift für klinische Medizin*, vol. liv, Nos. 5 and 6.

6. Stursberg: *Addison's Disease*, *Münchener Medizinische Wochenschrift*, liv.



tional low arterial tension." Hypotension is most commonly met with as the result of acute disease or of accident. The essential factor in shock is a low blood pressure due to vasodilation, the heart being little, if at all, at fault. As Crile<sup>8</sup> has shown, the condition is due to exhaustion of the vasomotor center. Here "control of blood pressure is control of life itself." Hemorrhage produces a fall in blood pressure, unless this influence is antagonized by vasoconstriction and increased rapidity of the heart beat, as it occurs from excitement in hemoptysis and other visible hemorrhage. When the psychic element is absent, as in intestinal or other concealed hemorrhages, or during anesthesia, the fall is marked in proportion to the amount of bleeding, though return to the normal occurs quite soon, unless shock or collapse supervene.

In the majority of acute febrile diseases there is a tendency to low blood pressure; this is especially marked in typhoid fever; and it is in typhoid fever especially that I believe the patient is not getting the benefit of the best, most up-to-date treatment if it does not include regular observation of the blood pressure. For such observations enable us by a sudden fall in pressure to recognize intestinal hemorrhage while it occurs, that is, at the time when prompt treatment can save a great deal of blood. Heretofore we have had to wait until the blood appears in the stools, which is usually hours after the bleeding has occurred. It is probably also capable of announcing the occurrence of intestinal perforation which in a number of cases has been shown to cause a sudden marked rise in arterial pressure. Besides this, there is no better way in which we can watch the condition of our patient's circulation and determine the need of stimulants. We should realize in this connection that a progressive fall in pressure is far more significant of danger than the actual numerical value at a single observation.

The use of the sphygmomanometer in surgery is probably as great as it is in medicine. There is no way in which the operator can so easily keep informed as to the true condition of the patient, both on the operating table and after, as by the use of this instrument. I believe that the blood pressure ought to be taken as a routine procedure before every operation; that the armlet should remain applied to the patient's arm throughout the operation and that it should be the anesthetizer's duty to measure the systolic pressure every five minutes during the operation, which, together with the pulse rate, should be recorded on a chart which can be seen by the surgeon. This procedure, which was originally recommended by Cushing,<sup>9</sup> makes it possible to take in at a glance the condition of the patient's circulation, and ought to be invaluable in giving a timely warning of the approach of serious circulatory depression.

I have touched in this general and incomplete way on the diagnostic value of the sphygmomanometer mainly in order to urge a more general use of this instrument. The therapeutic lessons to be learned by blood pressure determination would necessitate much too lengthy exposition to permit me to enter on this subject now. It can be stated, however, in all fairness that the best part of the use of this method of precision lies in the indications it gives for treatment and the manner in which it permits us to control the results of treatment. Indeed, I believe that the sphygmomanometer is destined to revolutionize our cardiovascular therapeutics.

#### AUX PLAINES BRANCH, CHICAGO MEDICAL SOCIETY.

The Aux Plaines Branch of the Chicago Medical Society held its regular monthly meeting in the Oak Park Hospital, Oak Park, Friday, Oct. 25, 1907. The following resolutions respecting the death of Dr. Leonard S. Taylor of Elgin were adopted:

7. Bishop, L. F.: Constitutional Low Arterial Tension, New York Medical Journal, 1906, p. 967.

8. Crile, G. W.: Blood Pressure in Surgery, Philadelphia, 1903.

9. Cushing, Harvey: Observations on Blood Pressure Changes in Surgical Cases, Annals of Surgery, 1902, vol. xxxvi, p. 321.

WHEREAS, We have learned with sorrow of the ending of the earthly career of Dr. Leonard S. Taylor; and

WHEREAS, At the joint meeting of the society with the Fox River Valley Medical Association on June 26 last, the brilliant discussion by Dr. Taylor contributed to the success of the occasion and the profit of those attending; now therefore be it

*Resolved*, By the Aux Plaines Branch of the Chicago Medical Society that we express in this permanent form our appreciation of Dr. Taylor's life and services, and our deep regret at his untimely departure from his field of usefulness; and be it further

*Resolved*, That a copy of these resolutions be spread upon the minutes of this society, be transmitted to the Fox River Valley Medical Association and be sent to the family of the deceased.

The following paper on The Diagnosis of Obscure Kidney Lesions was read by Dr. Lewis W. Bremerman of Chicago.

Dr. W. C. Danforth of Chicago presented specimens of hypernephroma and tuberculosis of the kidney during the discussion.

W. EVANS BAKER, Secretary.

## THE DIAGNOSIS OF SOME OBSCURE KIDNEY LESIONS.

L. W. BREMERMAN, A.M., M.D.

Formerly Professor of Genito-Urinary Surgery, New York School of Clinical Medicine;  
Visiting Surgeon to West Side German Dispensary of New York; Visiting Surgeon  
to Oak Park Hospital; Member American Urological Association;  
Member Chicago Medical Society.

When I was requested to present a paper before the Aux Plaines Branch of the Chicago Medical Society, I hardly knew what subject in my special work of urology would interest you as general practitioners, but after giving the matter considerable thought, I decided upon a subject relative to the diagnosis of some obscure kidney lesions, for every one of you at some time or other have kidney cases under your charge, and occasionally, I am sure, the diagnosis of the exact condition is exceedingly difficult.

The precise level of the kidneys in the abdominal cavity is subject to a considerable amount of variation, and there is usually a slight difference in the levels of the right and left kidney of the same individual. Most frequently the left kidney is on a higher level than the right, but in many cases they may occupy the same level or the usual condition may be reversed, the right being a little higher than the left. If a line be drawn around the body at a level with the lowest part of the thoracic wall, the entire, or almost the entire, left kidney will lie above this plane. It therefore occupies the subcostal zone of the abdominal cavity. The right kidney, on the other hand, although it lies for the most part in the subcostal plane, therefore it lies to a small extent in the abdominal region. In the female the kidneys may be found at a slightly lower level. If a line be drawn vertically upward from the middle part of Poupart's ligament, by far the greater part, usually two thirds or more, of the kidney lies to the inner side. The lower end of the kidney extends within from one and one-half to two inches of the highest part of the crest of the ilium, the space between the ilium and the kidney being, as a rule, greater on the left side.

Palpation is exceedingly important, hence my going into detail as to the situation of the organs, for by this means the relative size, position and consistency, or whether or not the organ is painful on pressure, may be ascertained. The best position for palpation is either erect or the semi-reclining position. The procedure is usually carried out bimanually, making deep pressure with the fingers front and behind. If the kidney in ordinary persons can be clearly mapped out it is very probably enlarged or movable, except in thin persons, when frequently the organs can be easily felt.

I will not dwell further on the anatomy excepting to say a word concerning the pelvis, which lies between the sinus of the kidney behind the larger renal vessels and is formed by the junction of two or more tubes (calyces majores), each of which has a number of branches termed infundibula. The pelvis is capable of holding from 10 to 30 c.c. of fluid. The ureter is from 10 to 14 inches in length

and its lumen varies in diameter. It must be kept in mind that the lumen is constricted slightly at point just before it joins the pelvis, at about 6 inches from the bladder and just as it reaches the bladder wall. The diagnosis of ureteral stricture might be made by one whose experience is not great if these points are forgotten. The ureter is sometimes represented by two tubes in the upper portion, or it may be doubled through its entire extent. There may be two openings in the bladder. These variations are for the most part unilateral and rare.

I mention the general characteristics of the ureter and pelvis, for possessing this knowledge we are able sometimes to diagnose accurately seemingly difficult cases. I have under my care at present a gentleman who has a stricture of the right ureter, at a point about ten inches above the bladder; behind this is a marked dilatation of the upper extremity of the ureter and pelvis. There is evidence of a mild chronic septic inflammation of the pelvis. Cystoscopic examination of the bladder showed a right ureteral orifice pulled away from its normal position due to narrowing of the channel and the dilatation of the pelvis, but the stricture and pelvic condition was only proved by the passage of a ureteral catheter. This pelvis held nearly 120 c.c. of fluid, and I was only able to pass a very small catheter through the stricture.

To be able to diagnose accurately the various renal lesions, one must necessarily first and foremost possess a knowledge of microscopy. He should be familiar with the use of the observation and catheterizing cystoscope and be able to apply the different methods of ascertaining renal function; radiography, which forms another very important aid to renal diagnosis, is usually left to the specialist. Let me put myself on record, notwithstanding the fact that a great majority of urologists believe and teach otherwise, *that it is absolutely possible to differentiate the epithelium from any portion of the urinary tract.* The ordinary urinary analysis, as furnished even by the best class of laboratories, is absolutely deficient and practically of little value.

The following is an example of a report received by me not long ago:

Total 24 hours, 64. Reaction, acid; color, amber; odor, urinous; specific gravity, 1024; albumin, slight trace; sugar, none; urea, 2.4 per cent.; bacteria, some, casts, none; crystals, few typical calcium oxalate; epithelia, some columnar; pus, some.

From the foregoing it is absolutely impossible to make a diagnosis.

The plan for urinary analysis that I use in all my cases, either of mixed urine or that drained from the separate kidneys, is as follows:

Physical and Chemical Examination of the Urine.—1. Urine (— cc.). 2. Urine (— cc.). 3. Urine (— cc.). Notes on manner of voiding urine. Hour voided. Has been retained. Total in twenty-four hours. Reaction. Specific gravity. Color. Odor. Sediment. Albumin. Bile. Blood. Chlorids. Indican. Phosphates. Pus. Sugar. Sulphates. Urates. Urea. Uric acid. Urobilin. Solids.

Microscopic Examination of the Urine.—Bacteria. Blood globules. Casts: Blood, epithelial, fatty, granular, hyaline, waxy. Connective tissue. Crystals. Epithelia from convoluted tubules. Epithelia from straight collecting tubules. Epithelia from pelvis of kidney. Epithelia from pelvis of ureter. Epithelia from ureters. Epithelia from upper layers of bladder. Epithelia from deep layers of bladder. Epithelia from seminal vesicles. Epithelia from prostate. Epithelia from prostatic duct. Epithelia from ejaculatory duct. Epithelia from urethra. Epithelia from vagina. Fat globules. Filaments. Mucus. Pus corpuscles. Spermatozoa. Microscopic diagnosis. Constitution.

If with a definite knowledge as to the point along the urogenital tract, that is, desquamating the epithelia, we can point to the exact source of the lesion, for the pus or the blood has for its origin the seat of the epithelial desquamation, so it is most essential for us to know the characteristic epithelium of the urinary organs. Blood and pus in the urine, even microscopically, is evidence enough of a more or less grave pathological lesion. Hematuria (bloody urine) and pyuria

(pus in the urine) are the most frequent symptoms that occur in lesions appertaining to the urinary tract. Hematuria more or less profuse, unaccompanied by pain, is usually present in the following conditions, as shown by Hurry Fenwick: Chronic nephritis (cirrhotic kidney); angioma of a renal papilla; benign or malignant growths of the kidney; submucous deposits of crude tubercle.

The bleeding that occurs in chronic nephritis is usually an early symptom and is most always from one kidney. A cystoscopic examination will enable us to disregard the hematuria as vesicle in character and will inform us from which kidney the bleeding is coming. Besides numerous red blood cells in the urine, there is present only a slight amount of albumin, a diminution of salts, pus corpuscles in small numbers, epithelium from the convoluted and straight collecting tubules, free fat globules and connective tissue shreds of small size and number. With the foregoing clinical picture a diagnosis is comparatively easy.

The diagnosis of angioma of a renal papilla is usually quite difficult to make, for there is no evidence in the urine of chronic nephritis, new growth, no tubercle bacilli or crystals. The bleeding that takes place in this condition may come on suddenly, may last for years, and be of an intermittent character. Diagnosis of capillary nevus of the renal papilla can only be suspected when all the other symptoms have been excluded, while an exploratory operation is essential to confirm an opinion. Cystoscopy and ureteral catheterization are of little help in this condition, only to map out which kidney is the one involved.

In the diagnosis of malignant or benign growths of the kidney, the cystoscope is exceptionally valuable, for we are frequently able to inform ourselves of the disease before any enlargement of the organ can be made out by palpation, and accomplishing this we are able many times to save our patient. To operate if kidney tumor is manifest on palpation is usually too late. A large proportion of tumors, either malignant or benign, show their presence early by *painless, irregular hematuria*. The hemorrhage comes on suddenly, is rather profuse and is bright red, clots occasionally being passed, due to coagulation of blood in the bladder. There may be a history of a slight trauma in or about the kidney. The most favorable time to examine cystoscopically the bladder and ureteral orifices is between the attacks of hematuria when the urine is clear. Often a long cast, plug or clot of blood will be seen projecting from the opening and that part of the ureter contained in the bladder wall, may be distended and may appear extending upward and outward as if the interureteric band was prolonged beyond the orifice. I have seen this condition, and at the time of the examination the plug was forced out immediately, followed by an afflux of pure blood to such an extent that a further examination was impossible. With such a severe hematuria, I feel perfectly justified in recommending an exploratory incision with the consent to nephrectomize, especially if the microscope shows a suspicious urine, and the bleeding is recurrent in individuals above the age of 40.

The ureteral orifices in renal growths are exceedingly characteristic, particularly is this so if the pelvis is affected; then the ureteric opening is elongated, swollen, and of a dull red color; however, in other cases the orifice may be normal in size with roughened edges, the interior of which may present a dull red color. The cystoscopic examination during the attack of hematuria presents an altogether different picture, for the afflux of bright red blood from one ureteral orifice proves positively that there is a serious hemorrhage of the corresponding pelvis. There is much more blood than urine and much more marked than in chronic nephritis. The characteristic microscopic appearance of the urine is important.

In order to diagnosticate positively sarcoma, there must be present in the urine large shreds of connective tissue, as well as numerous sarcoma corpuscles, which are exceedingly characteristic. There are evidences also of a more or less severe inflammation, with usually a large number of red blood corpuscles and pus cells which are finely granular, which proves, according to Heitzmann, and thoroughly corroborated by my own experience, a faulty constitution.



Carcinoma is quite difficult to determine by urinary analysis alone, but when the urine shows a large number of irregular connective tissue shreds containing inflammatory corpuscles, with all the evidences of chronic inflammation, cancer may be suspected, and coupled with the clinical history, a diagnosis may be made.

Early in tubercular conditions of the kidney there may be a rupture of a deposit of crude tubercle into the renal pelvis. In such cases the bleeding is usually very profuse and alarming, but the condition is rapidly followed by renal pain. The microscope will show tubercle bacilli if proper care and time be taken for their search.

The most frequent variety of hematuria associated with pain is that of calculus, and the characteristic appearance of the ureteral orifice will give us such a vivid picture of this condition that it may readily be seen whether a stone is imprisoned in the pelvis, descending along the ureter, or whether it has been arrested in the course of its descent. Renal pain must not be considered as an absolute criterion for the location of the lesion, for there exists a very sympathetic relation between the kidneys. I have seen marked pain on the healthy side with none to speak of from the diseased kidney. The pain on the healthy side may be due to an increase of local vascular tension, the result of increased activity of that organ. If a stone is retained in the pelvis, marked changes take place, which produce a characteristic appearance of the corresponding ureteral orifice. If a calculus obstructs the pelvis, dilatation is the result, as is shown by an elongated drawn-out orifice and with congestion of the lips. The calcareous pyelitis of the alkaline type as a result of retained calculus, shows a scald-like erosion of the lips of the orifice, while entire loss of the functional activity of the kidney produces a holing of the orifice, the "rat-hole" condition, with an afflux of solid or semi-solid pus.

It is an erroneous idea that stone descending along the ureter accomplishes its transit rapidly, for there are recorded cases in which it has taken months to complete its journey to the bladder. The descending stone when passing along the lower part produces little hemorrhagic areas around the orifices, accompanied by the clinical symptoms of frequency of urination, penile pain, tenesmus and spasm. Later the cystoscopic appearance of the orifice becomes profoundly red from extravasated blood. The shape of the stone may be made out along the ureter between the bladder walls. When the stone is arrested in its course the ureteral orifice appears very edematous and the distinct outline of its lips is lost. The afflux of the urine is retarded and at times entirely absent.

In tuberculosis of the kidney the cystoscopic picture is peculiarly clear, for there is usually present either the golf hole orifice of Fenwick, the choked orifice or massive edema of the orifice. The characteristic appearance of the orifice, together with the microscopical examination of the urine, proves absolutely a tubercular condition. The golf hole appearance of the orifice occurs in about 30 per cent. of the cases in which there is latent early tubercular lesions in the kidney with a possible infective urethritis. In the second variety, not so frequent as the first, 18 per cent. of the orifice is displaced, due to urethritis producing a contraction of the channel and pulling the opening away from its normal position. The third condition, that of the choked orifice, is a transitional stage between the first and second, and occurs in about 8 per cent. of the cases. There may be so much edema and periuretic extravasation of blood that no characteristic form or shape of the orifice may be ascertained, hence other methods must be brought to bear to complete the diagnosis.

Now, let us dwell for a few moments upon the pressure of pus in the urine which has for its origin the pelvis or the kidney. The cystoscope will disclose the fact that it is not the bladder or the lower urinary tract that produces the trouble. Pus in the urine may be proceeding from one or both ureteral orifices, yet an accurate diagnosis showing the extent of involvement can not be made purely from a cystoscopic examination.

Pyelitis of the ascending variety begins as a catarrhal type of inflammation, exceedingly common and usually unrecognized. A few cases are undoubtedly

self-limited and the infection is eradicated without treatment, but that is not so with a great majority of cases; the infection becomes more virulent, producing a marked septic inflammation; this may remain localized in the pelvis for an indefinite period, but sooner or later the infection will gain entrance into the kidney structure, producing a pyelonephritis and later a true nephritis. From the examination of a large number of specimens of urine drawn from the separate kidneys in cases of nephritis, I rarely found any in which the pelvis was not involved. To prove absolutely that the pyelitis was primary and not secondary is difficult, yet it appears to be strikingly logical that on account of the frequency of infection that occurs in the lower urinary structures the majority of cases are of the ascending variety.

Catarrhal pyelitis, owing to its lack of renal symptoms, is peculiarly difficult to diagnose, but if a careful microscopical analysis be made there will be evident pus cells in moderate numbers with pelvic epithelial cells, the cystoscope will show one or both ureteric orifices slightly edematous and of a dull red color. As the infection becomes more virulent pus is evident in the urine macroscopically, and pussy urine may be seen flowing from the orifice of the ureter. The microscope shows many pus corpuscles and pelvic epithelia. At this stage there are more clinical symptoms referable to the kidney.

If these conditions are left untreated there will soon appear in the urine, besides the elements mentioned above, cells from the straight and convoluted tubules, with an occasional cast, showing a beginning destruction of the renal tissue. If this continues a nephritis is the result with its fatal endings. I have seen cases of nephritis in which one kidney was involved to a greater extent than the other, which only goes to show that like all kidney lesions which are unilateral in their beginning, soon involves both kidneys. If these conditions are recognized soon enough I thoroughly believe that a great many cases of nephritis may be aborted.

From my foregoing remarks it is evident that the microscope and cystoscope are absolutely essential instruments in kidney work. The cystoscope not only determines the bladder lesions, but it can accurately depict which pelvis is affected, and correctly indicate how much of the renal tissue is at fault. However, for a differential diagnosis we must depend on the microscope, the examination being made of the urine withdrawn from the separate kidneys by the ureteral catheter. It must not be forgotten that a few casts are evident in most kidney lesions, especially in chronic nephritis, malignant growths and stone. When the casts are numerous a chronic granular nephritis is evident. Crystals when numerous, especially of the lime phosphate type, indicate phosphatic covered stone. Clumps of abnormal cells point to neoplasms.

Time will not permit me to go more into detail upon any of these subjects, but I want to say in closing that, although the cystoscope and ureteral catheter are of vast importance in diagnosis, their use is ordinarily left to the specialist, for one must be familiar with cystoscopic technic and have a large and varied experience in this work to be able to come to a definite conclusion. For diagnosis the general practitioner should know his microscope and should endeavor to examine carefully many specimens of urine, not only from normal patients, but from those in which he suspects kidney lesions.

Just as soon as the profession recognizes the fact that epithelia from the different portions of the urogenital tract may be studied and their source accurately located, the diagnosis of kidney lesions will be reduced to a positive certainty.

808 Chicago Savings Bank Building.

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#### CHICAGO MEDICAL EXAMINERS' ASSOCIATION.

A regular meeting of the Chicago Medical Examiners' Association was held Tuesday evening, October 22, at the Union Hotel. The program was as follows: Report of delegate to the American Association of Medical Examiners at the last session held in Atlantic City, N. J., June 3, 1907. Resolutions:

WHEREAS, At its late session the American Association of Medical Examiners has wholly ignored the delegate of our local association, and

WHEREAS, The continuance of our relations with the American Association of Medical Examiners is and has been inimical to the welfare of this association; therefore, be it

*Resolved*, That the Chicago Medical Examiners' Association hereby severs its affiliation with the American Association of Medical Examiners; and be it further

*Resolved*, That a copy of this resolution be sent to Mr. John G. Monihan, secretary of the American Association of Medical Examiners for publication in the *Medical Examiner and Practitioner*.

The reading of this resolution, introduced by S. Eisenstaedt, was the occasion for a general discussion. After a motion to lay the resolution on the table for two months had been defeated, the original motion to adopt was carried.

Symposium.—The Relation of the Medical Examiner to Applicant and the Company, (a) W. S. Royce, (b) J. Allen Patton, (c) S. Eisenstaedt. The discussion was opened by W. K. Harrison and every member present took part in the same. The president announced before adjournment the joint meeting of the Chicago Medical Examiners' Association with the Chicago Medical Society, which will be held November 20 in Public Library Hall. S. EISENSTAEDT, *Secretary*.

#### CHICAGO OPHTHALMOLOGICAL SOCIETY.

Meeting of October 14, 1907, Dr. F. C. Hotz presiding.

##### A CASE OF SEPTICOPYEMIC METASTASIS IN TWO EYES OF THE SAME PATIENT.

Dr. Geo. F. Suker reported the case of a young woman who developed septicemia following an induced abortion. Both eyes became infected, necessitating their removal. The left eye was first affected. The conjunctiva was very much swollen and the anterior chamber filled with pus. There was complete loss of vision. Vision in the right eye was impaired, but the patient could count fingers at any distance. The left eye was eviscerated and the scleral cavity was packed with gauze, with the expectation of later implanting a glass sphere or of enucleating the stump and doing a Frost operation.

The media in the right eye were clear; the nerve head was somewhat edematous; cornea clear, but on the evening of the same day the vitreous and anterior chambers were filled with pus and the woman was completely blind. Under local hot applications and saline injections the eye quieted down, leaving an inferior staphyloma of the chorioid and sclera, which finally subsided. The eyeball became quiet, the cornea cleared up and the anterior chamber became free from pus. The lens was cataractous. The iris was bound down by adhesions. A secondary iridocyclitis set in and phthisis bulbi ensued. The eye had to be enucleated. A careful bacteriologic examination of the left eye proved this to be a streptococcus infection. The bacteria were obtained from every section of the eye. The woman is alive and well.

A decalcified bone sphere was implanted in the Tenons capsule of the right eye and the cosmetic result is an excellent one. This is the fourth or fifth case where a patient survived a septicopyemia with ocular metastasis and the only case where a double enucleation was performed, the patient still being alive and well.

##### DISCUSSION.

Dr. F. Hotz has seen two cases of such infection following puerperal fever. In both cases the patient recovered. The eyes were affected and suppuration of the globes occurred, destroying the eyes.

Dr. Brown Puscy asked whether the retinae were involved.

Dr. Suker replied that both the retina and chorioid were involved. The patient was in the hospital for about eight weeks and her temperature curve was characteristic of septicemia. At times the patient became maniacal. She developed one abscess after another, which had to be opened, the last abscess being a lacteal abscess. From the pus a pure culture of a very virulent streptococcus was obtained—long chains of a large coccus.



Dr. A. T. Horn stated that the patient was 27 years old, a ii-para, with one miscarriage. She had had amenorrhea for two months, and about ten days before she was seen by Dr. Horn she had a gush of blood and after that a sanguineous discharge. Her pulse was 120, temperature 104 degrees. There was much tenderness in the region of the uterus and tubes. On the evening of the same day the pulse was 138, temperature 105 degrees. Under anesthesia the uterus was dilated and curetted of clots and shreds of membranes. An intrauterine douche of permanganate was given and the uterine cavity packed with gauze. The temperature dropped to 103.5 degrees, pulse 130. The following morning the pulse was 102, temperature 99 degrees. Attempt at abortion was denied and no fetus was found. The substances removed from the uterus proved to be secundines.

#### A CASE OF ALBUMINURIC RETINITIS IN A YOUNG PATIENT.

Dr. Mortimer Frank reported the case of a girl, aged 18 years, who was first seen by her family physician in July, 1906, when she had dropsy of the feet and face. In September of this year there was still 5 per cent. of albumin in the urine. The disease was progressive and a diagnosis was made of chronic Bright's disease. In October, 1906, the patient complained of her vision, but no examination was made of the eyes. At that time the patient weighed 165 pounds from the dropsical accumulation. On the last Sunday in December, 1906, she had uremic convulsion and there was complete anuria. She remained unconscious for forty-eight hours, then rallied and improved slowly.

In January, 1907, she could only count fingers at one foot. In June, 1907, when Dr. Frank first saw the patient, the vision in the right eye was 6/12 plus; in the left eye, hand movements. Under homatropin-cocain, right eye was 6/9 plus 1 with correction, or plus 0.75  $\subset$  plus 1.00  $\times$  90; in the left eye there was no improvement. The fundus was typical of an albuminuric retinitis. Vision gradually improved, and in August, 1907, with glasses, she read 6/6-1, and in September, 1907, 6/6 plus, and on October 8, 1907, when last seen, vision equaled 6/5. No improvement in left eye.

#### REPORT OF A CASE OF DOUBLE CONICAL CORNEA.

Dr. F. Hotz had a young girl under observation for several years for conical cornea. In April, 1905, she was 13 years old, a slim, delicate, poorly developed girl. Her parents had noticed for several years that her sight was imperfect. Examination showed in the right eye a slight conical cornea, with nothing abnormal in the fundus. Vision was 20/400; no improvement with a combination of glasses. The left eye could only perceive the movements of the hand. The cone of the cornea was marked. Under atropin, on April 22, a minus 2 with minus 3 cylinder, axis 180, got vision of right eye to 20/70. Atropin was continued for a month, and examination on May 27, 1905, showed right eye minus 1 with 1 cylinder, axis 180, vision 20/50. Left eye gave 6/50 minus 200. In July the same result was obtained. In January, 1906, the vision in the right eye was 20/70 without glasses and with a plus 3 cylinder, axis 180, 20/40. In March, 1907, with plus 5 cylinder, axis 180, vision was 20/30, and in October the condition was the same, plus 5 cylinder gave 20/40 vision. The left eye still shows a conical cornea, but in the center of the right eye there is a little speck, but no cone of the cornea. The remarkable feature is the myopia in the vertical meridian has changed to such a marked hyperopia. MORTIMER FRANK, M.D., Secretary.

#### JO DAVIESS COUNTY.

The Jo Daviess County Medical Society held its quarterly meeting in the Elks Hall, Galena, Ill., Oct. 24, 1907, at 1 o'clock. The following members were present: Bench, Nadig, Smith, W. A. Kolb, Keller, Weinch, Clark, Tyrell, Stepleas, Buckman, Renwick, Kreider, Lewis, E. R. Smith, D. G. Cottral, Boots, Wright, Godfrey, Gunn, Melhop, Gratiot, Stealy, with Drs. H. M. Fowler and S. H. Hillard as visitors. An interesting symposium had been prepared, but two valuable papers



were missing. Dr. G. M. Tyrell read a paper on Catarrh of Gall Bladder and Ducts, with Treatment. Dr. G. H. Cottrell read a paper on Some of the Essential Drugs that Act on the Liver, Directly and Indirectly, Indications and Contra-indications. Discussion was opened by Dr. Kreider, followed by Drs. Stealy, Staples and others. Dr. H. M. Fowler of Lamar, Colo., a former member of the society, was present and addressed the meeting, giving his experience with his own case, with which he had been afflicted for the last five years. He claims a cure and was delighted to again meet with his old society. Dr. Morris H. Cohen of East Dubuque was elected to membership. Lena was selected as the next place of meeting.

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#### LIVINGSTON COUNTY.

The Livingston County Medical Society met in Forrest, Nov. 7, 1907, with twenty-one members present. Dr. Geo. W. Webster, president of the State Board of Health; Dr. John P. Webster, of Chicago, and Dr. Bucher, of Piper City, were the visitors present.

Dr. Law, of Weston, read a very practical paper on Eclampsia, which was freely discussed by most of the members.

Dr. Webster gave a very interesting talk on the work of the state board and explained the distribution of free diphtheritic antitoxin throughout the state. At the close of his talk he invited the members of the society to ask any questions they desired in regard to the work of the board, and the physicians present kept him busy for the next half hour. This society greatly appreciated Dr. Webster's visit.

Dr. John P. Webster demonstrated a new chloroform inhaler which he brought from London and which can be so regulated that the exact amount of air and chloroform is always shown. Dr. Elfoink, of Chenoa, read a paper on Hypertrophy of the Liver and reported a very interesting case. Dr. John P. Webster read a paper on Cesarean Section, which was greatly appreciated by the society and was freely discussed.

The physicians of Forrest served a banquet at 6 o' clock to the visiting physicians and twenty-five invited guests. The banquet began with aqua pura, celerina a la Rio Chemical Co., and run the whole gauntlet to nicotina tabacum. Dr. J. B. Baker, of Pontiac, was toastmaster, and Mayor McDowell, of Forrest, Dr. E. H. Fitzpatrick, Dr. A. B. Middleton, Dr. John P. Webster, Attorney Adsit, E. A. Eignus and Dr. L. R. Allen responded to toasts, and the Forrest Male Quartet furnished excellent music.

Any physician of Illinois who doesn't know where Forrest is located should get down his map and look the location up, and when he hears of the next medical meeting in that town be sure to be there because they have just three physicians there, but they are live ones and they surely know how to entertain a crowd. There are sixty-five doctors in this county and this society has forty-five members, all in good standing, all enthusiastic, and every member has paid his dues in advance.

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#### MACOUPIN COUNTY.

The Macoupin County Medical Society met in the Masonic Reading Room, with Dr. Wm. M. Gross of Gillespie in the chair. The following members answered to the roll call: Drs. D. A. Morgan, Nilwood, J. S. Collins, S. H. Corr, J. P. Denby, C. J. C. Fischer, J. Pite and J. Palmer Matthews and F. W. Wood of Carlinville; Dr. E. B. Hobson, J. N. English, Chas. D. King and Wm. M. Gross of Gillespie; H. A. Patterson and F. A. Renner of Benld. Dr. R. D. Berry of Springfield was present and took part in the discussion. Dr. Black of Jacksonville came in the afternoon with his Councilor's report. Dr. L. D. Rockefeller of Harnsby made application for membership. He was graduated from Rush in 1900. The treasurer cast the ballots of the nine members present and he was duly declared a member on signing the constitution.

The special committee on Opsonins made extensive reports. The chairman, Dr. Wood, gave a clinical report of cases. Dr. Kreig read an historic essay, and Dr. Pattison predicted its successful use in germ infection, but advised caution in the practical application of the remedy by the general practitioner. The laboratories should simplify their methods and supply the physician with autogenous serum from specimens sent to them for inoculation and culture growth. The four cardinal temperaments, which are sanguine, bilious, phlegmatic and nervous were reported by Drs. Matthews and Gross. The thanks of the society were extended to the members of the committee and the papers read and accepted as contributions. Dr. Denley's paper on the Treatment of Appendicitis was, on motion, accepted as a contribution to the society. Synopsis: The diagnosis being thoroughly established, the treatment in all cases should be operation. Should operation be at once performed or be delayed? Lack of unity in the profession on this point and failure of the patient to submit to operation at the hour when chances are best for a recovery is our greatest barrier to success. The time operation should be deferred is to be determined in each individual case. In all cases absolute rest should be enjoined. If the symptoms do not abate, operate at once. If the symptoms are mild from beginning, and are entirely arrested after twenty-four hours, operate after entire recovery from the attack. The treatment to be administered in cases refusing to submit to operation is the relief of pain. The ice bag is the most successful, but if not at hand, morphin should be resorted to, only enough to relieve pain, and produce rest should be used. It masks the symptoms and gives the patient a feeling of false security. Hot turpentine stupes give relief when cold applications fail. Absolute rest of mind, body, and above all the alimentary tract, is the main agent in treatment. No food should be allowed even in the mildest cases. After twenty-four hours a small enema may be given when the symptoms are abating. Castor oil and salts is the best means of moving the bowels. When suppuration takes place no purgative should be given. In cases of vomiting, abstaining from food, drink and medicine will relieve. Swallowing pieces of ice will often relieve the symptoms. Pain, vomiting, and constipation are the main and most frequent symptoms to which we need give attention. The less drugs used the better. The feeding is not the least of our troubles. The diet must be liquid. Milk, either raw or predigested, is the best form of diet. Animal broths may be substituted where milk is not tolerated.

Discussion following: Pain, fever, vomiting and rigidity of the rectus muscle are the diagnostic signs. A thready pulse is a dangerous sign of the formation of pus. The etiology is that of gout of the intestines and antilethic treatment of calomel and salts will relieve the local symptoms before the formation of pus.

Carlinville is the next place of meeting. Essayists, Dr. J. N. English, Dr. Barcus and Dr. Collins. A committee of three was appointed to prepare a program to study the postgraduate course recommended by the American Medical Association. The society on motion then adjourned till the fourth Tuesday in January, 1907.

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#### PIKE COUNTY.

A meeting of the Pike County Medical Society was held in Barry, Ill., October, 1907. Members present were: Drs. F. M. Crane, L. J. Harvey, J. G. McKinney, R. J. McConnell, T. D. Kaylor, J. E. Miller, J. H. Rainwater, C. E. Beavers, W. W. Kientz, R. H. Main, M. V. Collins and G. U. McComas. Visitors: Drs. Addison of Chicago, Carl E. Black of Jacksonville, W. E. Doane of Beverly, P. H. Dechow of Kinderhook, W. F. Reynolds of Eldara, and L. C. Carder of Hull. Dr. F. M. Crane, president, presided. Dr. L. J. Harvey read a paper on the Conduct of Natural Labor. Dr. F. M. Crane read a paper entitled Unconscious Demoralization in Regular Practice Through Disregard of Psychic Miasma. Dr. C. E. Beavers presented a paper on the Nature of Opsonins and the Application of Vaccine Therapy to the Treatment of Disease. Dr. Carl E. Black addressed the society on various topics and demonstrated a system of surgical bandages. Dr. P. H. Dechow of Kinderhook applied for membership in the society. A committee consisting of

Drs. Main, McComas, Miller, Harvey and Thomas was appointed to investigate a system of postgraduate study and to report the advisability of taking up the work at a meeting appointed in Pittsfield on Nov. 21, 1907.

### ROCK ISLAND COUNTY.

The October meeting of the Rock Island County Medical Society met at the Manufacturers Hotel in Moline, Tuesday, Oct. 8, 1907. The society was called to order by the president, Dr. S. B. Hall. After the reading of the minutes, clinical cases were presented by Drs. Gardner, Sala, Lamping and Snively. The name of Dr. Charles Freytag was voted on and he was unanimously elected to membership. The name of Dr. Ringnell was proposed for membership. The usual bills were allowed, after which the scientific program was taken up as follows: Symposium on Erysipelas: 1. Causes and Pathological Anatomy, Dr. F. H. First. 2. Symptoms, Course, Duration and Termination, Dr. Wes. 3. Diagnosis, Dr. Ludewig. 4. Treatment, Dr. R. C. J. Myers. The papers were freely discussed by Drs. O'Hern, Tremblay, Minnick, Dunn, Eddy and Johnson. The following members were present: Drs. First, Gardner, Souders, O'Hern, Emma Morgan, Minnick, Youtz, Sala, Eddy, R. C. J. Myers, Hall, Ludewig, Edlen, Dunn, Browning, Lamping, G. G. Craig, Jr., Tremblay, Long, Arp and Snively.

### VERMILION COUNTY.

The Vermilion County Medical Society met in the City Hall, Danville, November 11. Dr. T. P. French was elected president pro tem. The evening was devoted to Vaccine Therapy with Practical Laboratory Demonstrations of Obtaining the Opsonic Index as a Guide to Treatment, by Dr. W. A. Cochran of Danville. The evening was a very profitable and interesting one and Dr. Cochran was extended a vote of thanks for the work.

### WABASH COUNTY.

The regular meeting of the Wabash County Medical Society was held Oct. 22, 1907, at Dr. Schneck's Hall, Mt. Carmel, Ill. The meeting was called to order by Vice President Dr. S. W. Schneck. Later the president, Dr. R. J. Murray, arrived and took charge of the meeting. The following members were present: Drs. C. E. Gilleatt of Allendale, R. J. McMurray of St. Francesville, and Drs. Maxwell, Utter, Kingsbury, Schneck and Mercer of Mt. Carmel. Dr. J. J. McIntosh, who recently removed from Vincennes, Ind., to Allendale, Ill., was also present.

Program: The Treatment of LaGrippe, by Drs. L. J. Lescher and R. S. Mauley. Both being absent, the subject was very fully discussed by all present; also some interesting clinical reports of la grippe. Dr. S. W. Schneck then read a very interesting and instructive paper on Acute Bronchitis and Some of its Peculiar Phases, with clinical reports of three very interesting cases. The president appointed Drs. Maxwell, Gilliatt and Mercer as a nominating committee. The committee recommended that the present officers be nominated for the ensuing year: President, Dr. R. J. Murray; vice-president, Dr. S. W. Schneck; secretary, Dr. W. E. Mercer; treasurer, Dr. R. S. Manley. It was moved and carried that the report of the committee be accepted and that the officers be elected by acclamation. The application of Dr. J. J. McIntosh was read and referred to the following committee: Drs. Maxwell, Schneck and Mercer.

### CANCER OF THE UTERUS.\*

J. C. KLUTHO, M.D., BREESE, ILL.

Owing probably to position as well as to its special anatomical arrangement, the cervix uteri seems to be frequently the seat of carcinoma. The body of the uterus, on the other hand, is so seldom affected by the same disease that when the

\* Read at the meeting of the Clinton County Medical Society held at Aviston, Nov. 5, 1907.

unqualified phrase of "Cancer of the Uterus" is used it means Cancer of the Cervix. Malignant disease of the womb runs no typical course; there is, however, a stage during which the tumor forms, and one where it breaks down and ulcerates; during the first stage, or stage of tumor formation, the symptoms are very few and slight. Leucorrhea, pains and blood-streaked discharge follow in the order named, and in the majority of cases they are not severe or mysterious enough to arouse the suspicion of the victim and urge on her to seek medical advice. Gradually the symptoms become more pronounced, the discharge more bloody, pain more constant and severe. The patient becomes pale and cachectic, she also loses weight. This is the second, or stage of breaking down and ulceration. The lymphatic glands have bravely fought against the poisonous and fatal intrusion, but they have been finally overcome, and now those delicate little lymphatic channels are already numerously impregnated with the product of cancer formation. This is about the time the majority of cases first present themselves for treatment. They are then in the second stage and, of course, beyond a radical cure. Had they come immediately after first noticing the blood-streaked discharge, probably another story could be told. The fact is deplorable and due to both ignorance and the mild symptoms in the first stage.

I have often thought that there should and could be some method or means, say, for instance, through the medium of a pamphlet, officially prepared and sent out by either state or county board of health, or any other way, by which the laity could and would acquire some knowledge on the early symptoms of developing cancer in general, and the women on cancer of the cervix in particular.

A little money judiciously spent in that direction would save many lives and be of more value and benefit to general humanity than all the high-priced libraries which have of late been so promiscuously distributed. As to the above pamphlet idea, they are doing this very thing in tuberculosis right here in the northern part of the state, and from reports I have been reading they are meeting with success and doing a great deal of good. Cancer is not quite so prevalent, but its results are even more dreadful and fatal, and the medical society in every county will find abundant work in that direction.

#### VARIETIES.

1. Schirrus or hard cancer, which runs a more or less prolonged and chronic course.

2. Encephaloid or soft cancer, very acute; it differs from the preceding in the greater rapidity of its growth, the small amount of stroma and the softness of its texture. Many pathologists do not class them as constituting two distinct varieties, since the former sometimes, or rather very often, changes into the latter after going through intermediate stages. Skene claims that almost all cases of encephaloid cancer really had their beginning as a schirrus but did not come under observation during that stage.

3. Epithelioma; this constitutes a distinct class and is probably the variety most frequently met with in the uterus. Epithelioma, according to its pathologic-histologic make-up, is again divided into four varieties, namely, squamous, rodent ulcer, columnar, colloid.

#### FREQUENCY AND ETIOLOGY.

Until puberty (this alluding to cancer in general) the death rate from cancer is the same in both sexes, which I may add is almost nil; from that period on both frequency and death rate steadily increase in the female up to the menopause, at which period the difference in rate in the sexes is most marked—it being greatly in favor of the female.

Some differences are met with in authorities in regard to the frequency of cancer of the uterus; reliable statistics collected by Skene, however, show that out of a total of 61,715 cases of carcinoma (anywhere in the body) of the female, the uterus was the seat of the neoplasm 3,000 times, which shows that the uterus is affected three times as often as any other organ in the female body. There is no doubt that there is such a condition as a predisposition to malignant disease,



but to what extent this can be inherited has as yet not been definitely determined. It is well known, however, that certain peculiarities of organizations predispose to malignant disease. Among these is the cardiovascular hyperplasia of Virchow where the pulmonary arteries are undersized, which occurs often with the phlegmatic temperament, characterized by an abundance of adipose tissue and an appearance of health, which is an appearance only and nothing else. Most authorities agree that in 13 to 15 per cent. of cases a hereditary taint can be traced. Age is also a great factor. Kelly quotes the following 52 cases occurring at different ages:

Between the ages of 31 and 35 years.....	5 cases.
Between the ages of 35 and 40 years.....	7 cases.
Between the ages of 40 and 45 years.....	19 cases.
Between the ages of 45 and 50 years.....	6 cases.
Between the ages of 50 and 55 years.....	7 cases.
Between the ages of 55 and 60 years.....	4 cases.
Between the ages of 60 and 65 years.....	4 cases.

This table corresponds with most others and goes to show that most cases of carcinoma uteri occur at or near the menopause. It has also been shown that there is a direct causal relationship between cancer of the cervix and the traumatism of childbirth. Cancer in non-married nullipara is extremely rare. In 50 cases reported by Kelly with accurate data as to marriage and pregnancies, 49 had borne children and more than half of them had four or more. Skene claims an average of five children (which is a fairly large family for the present time). For his carcinoma uteri patients he further states it will be found that patients with cancer of the uterus will average one-third more children than women free from malignant disease of the womb. Kelly, during his entire and extensive practice, has only had three cases of cancer of the cervix in nulliparous women, and in two of those the cervix had been forcibly dilated.

W. R. Williams of London found upon careful investigation that at the time of this statement, 1904, 8,000 women were suffering from cancer of the womb in Great Britain and Wales; the population being about 30,000,000, that would be one case in every 3,750 people. In addition, prolonged lactation, antihygienic surroundings, poor or improper food, exhausting diseases, grief and anxiety, are all apt to facilitate and even help induce cancerous growth.

#### DIAGNOSIS.

To describe the symptoms of the disease in its different stages would take too much time. The history and clinical picture of those cases is, however, very characteristic, and a digital and spectral examination of one or two previous cases would almost enable one to make a correct diagnosis, without as much as asking the patient a single question; nevertheless, every case, or I should say, the scrapings of every case, should be subjected to a careful microscopical examination, which will tell us not only that we are dealing with a cancer, but of what variety.

#### PROGNOSIS.

The prognosis of malignant uterine growths invariably has a tendency toward death; as to its course, the variety as well as the general behavior of tumor will be a guide. A little time will pronounce the growth, either slow or rapid, a complicated or non-complicated, a localized or extending process.

During my private, and especially my hospital experience, I have had the opportunity to see and observe a few of these cases, and from them have selected three, which, owing to their similarity, typical course and inevitable end, will serve fairly well toward characterizing the general run of these cases.

CASE 1.—Mrs. D., 46 years of age, living in the country, was seen by me in December, 1900. She first began to menstruate at the age of 14 and was married at 20. She had borne six children. The second last one has been delivered with difficulty. She gave a history of a lacerated cervix, which probably had been injured during her fifth labor. Menopause had occurred at 42 years. With the exception of those minor diseases which a woman in her stage of life seldom

escapes, she had been fairly healthy all her life and no hereditary taint could be traced. She first noticed a slight watery discharge, which occasionally appeared a little reddish, some eighteen months ago. The discharge gradually became more and more streaked with blood, and for the last six or eight months there had been more or less hemorrhage occurring at intervals of three and four weeks; still later hemorrhage had been excited by the slightest irritation, such as walking, standing, douche, coitus, etc. When I first saw her she was greatly emaciated, suffering from pain and hemorrhage. The hemorrhage, which was fairly profuse, had been uninterruptedly continuous for the last three weeks, and it was the continuous hemorrhage which had finally driven her forth to seek relief. She weighed then about 120 pounds, having lost 30 pounds in the last three months. The physical examination revealed a characteristic cauliflower growth, with numerous fissures and excrescences filling the upper and posterior portion of the vagina. The mass, which was transfixed by adhesions, extended posteriorly and to the right, partially filling both the left iliac fossa and the pouch of Douglas. The body of the uterus was involved and the left ureters so imbedded in the mass that it would have been a physical impossibility to separate it. A complete extirpation being, of course, out of the question, I advised and did curettement, using an ordinary large sharp spoon curette; the scraping and scooping out was as extensive as could safely be done, without wounding the adjacent organs. A small piece of cotton wound around the end of the applicator was then saturated with pure carbolic acid and applied to the scraped surface, followed by an application of alcohol, the interval between depending upon the degree of cauterization desired. The wound was lightly packed with gauze and the patient put to bed. After she had worn off the effects of chloroform she was put on strychnin, whiskey and milk, and a little later on a tonic and nutritious food, and after two weeks she was absolutely free from any discharge; and the pain, which previous to the operation had been almost unbearable, was only a slight source of annoyance; she became stronger and even gained slightly in weight. She left the hospital and went home three weeks after the operation. As she lived some distance from the city, I did not see her as often as I wished to. She lived for sixteen months after the operation, and with the exception of the last two months, she was in fairly good condition and had very little pain; at that time her discharge became again more profuse. She died of uremic poisoning, having been in bed six days. Probably another application of carbolic acid would have been of some benefit, but not being in position to see her often enough, it was not done. Nevertheless, two years and ten months is a long time for a cancerous patient to live, and if, during that time, we can give her fairly good comfort, we have accomplished something.

CASE 2.—Mrs. K., 50 years of age, weight 155 pounds. She was married at 17; had three children and one miscarriage. Started to menstruate at 13 and menopause started at 46. Her first symptoms, which were not unlike Case No. 1, occurred about ten months before I saw her. During the last six months she had more or less hemorrhage and had consulted some other physicians who had treated her with electricity, but did not tell her the nature of the disease.

Some scrapings examined under the microscope revealed a columnar celled epithelioma. The involvement was at that time very extensive, including besides the uterus, the broad ligaments and both ureters forming adhesions between all the pelvic organs, enucleation in this case being also impossible. I proceeded very much the same as in Case No. 1. There was present a fistula leading into Douglas' pouch, and for that reason I did not make a carbolic application, being apprehensive that it might easily burn through some thin adhesions and cause some trouble higher up. The nature of the tumor was soft, pliable and of a rather rapid growth. The patient did fairly well for about three months, being up and around most of the time; after that she developed a rectal fistula, pain and hemorrhage became more severe, and for which she had to be kept under the influence of morphia. She died five months after the operation from apoplexy, probably superinduced by an embolism. I tried, but could not get consent to make a postmortem.

CASE 3.—Mrs. M., 53 years of age, weight 120 pounds; menstruated at 12; married at 16; had one child and one miscarriage. Menopause at 45. Two years ago she first noticed a slight discharge. I saw her in January, 1904. She had been bleeding continuously since Dec. 4, 1903, about thirty days. She was getting weak and losing weight very rapidly. The microscope showed it to be an epithelioma of the columnar celled variety, and judging from the time she had been subject to the disease, it was not of a rapidly growing nature; this was also shown by the typical gland formation and large cells, as seen under the microscope. The mass or tumor extended posterior and to the right filling the right iliac fossa; the left side, with the exception of the cervix and inferior part of the body of the uterus, was not affected. A thorough curettement with carbolic application immediately allayed all pain and hemorrhage, the patient leaving the hospital ten days after the operation. At home she was kept under systemic treatment, being up and around and only going to bed at night. Eight months thereafter, when the symptoms again became annoying, I made another carbolic application. I want to mention here that the discharge in this case had a very decidedly disagreeable cancerous odor, which in the latter stages of some cases is much more pronounced than in others, and sometimes becomes almost unbearable and nauseating. Three months after this operation or application, she was sent to a sanitarium in Peoria. She died March 15, 1905, having lived in fairly good comfort for fourteen months after the first operation. Death was due to general debility and exhaustion, as the attending physician informed me.

This paper, together with the doleful endings of reported cases, does not reek much of brilliant success, neither have I been telling anything new or startling. My object is to show how little we can do for the poor unfortunates thus afflicted. The treatment in these cases must at best be only palliative to relieve pain and hemorrhage; such half-hearted methods of packing the vagina with either hot gauze, ice, plugs soaked in perchlorid of iron tonic, acid, rhatany, catechu or ergot by mouth, or ergotin hypodermatically, may be resorted to in an immediate emergency, but otherwise they are of little value.

Escharotics, both mineral and vegetable, as well as the thermocautery, have played an important rôle in the treatment of cancer, not only at the present day, but already in days long gone by. Cancer, like tuberculosis, being a grim and dreadful reaper, levying its enormous fatal tax year in and year out upon the living of this world, has spurred on to action both scientist and charlatan, who like the drowning man grasps at the straw of the slightest clew and follows it to the very end in their ardent endeavor to stem the tide. The one for science sake, the other for pelf and gain, and therefore we have, like mushrooms, that spring up in the night, a crop of so-called new cures every year which after repeated trials fall by the wayside to make way for the new to come. And so it will go on, until, maybe, some day, let us at least hope, work and pray, a cure for cancer will be found.

Among the more or less recent discoveries we may mention the *x*-ray, Finsen's light, radium and serum therapy as having given both relief and benefit, and even cures in the early stages, but in the early stages only, and when the cancer is easily accessible, the knife will do as much and probably in less time.

The question of to-day which seems to be of greatest importance, is whether or not cancer is of parasitic origin. The embryonic erratic cell theory of Cohnheim is at present finding a great many advocates, since probably the work pursued along the germ theory (which in late years amounted to almost a hobby with most scientists) has not been very pregnant with results, and the investigation in that direction may soon be of great importance.

The idea is to find some way or means by which to furnish, introduce and supply to the individual tissue cell such matter, the deficiency of which causes the cell to break down and die before it matures, and when that is attained we will be very near the goal. In the meantime, let us do and give the best we have to our unfortunate cancer patient and wish not only Godspeed and success to the researchers, but contribute our little mite wherever chance offers.

## NEWS OF THE STATE.

### PERSONAL.

Dr. and Mrs. Alfred D. Kohn, Chicago, have returned from Europe.

Dr. and Mrs. C. Thomas McCord, Paris, have returned from Europe.

Dr. Arthur C. Johnson, Newark, has sold his practice and will study in Europe.

Dr. William M. Dixon has succeeded Dr. Bacon as smallpox physician of Canton.

Dr. William H. Wilder, who has been seriously ill, is reported to be improving.

Dr. Eli G. Davis, Lewistown, was injured in a runaway accident October 17.

Dr. Morton Snow, Chicago, has been obliged to go to Oaxaca, Mexico, for his health.

Dr. C. Richard Lockwood, Atwood, has sold his practice and will soon leave for Europe.

Dr. Victor J. Baccus has been elected a member of the French Association of Urology.

Dr. Nicholas Senn of Chicago returned from his trip around South America October 25.

Dr. Louis Schmidt of Chicago was elected a member of the Association Francaise d'Urologie.

Dr. Marcus Whiting, Peoria, received severe injuries to the face in a runaway accident recently.

Dr. and Mrs. William S. Holliday and family, Monmouth, have gone to California for the winter.

Dr. John W. O'Haver, who was recently operated on in Lake View Hospital, Danville, has recovered and resumed practice.

Dr. John E. Covey, Bloomington, who was recently operated on for cancer of the stomach, is reported to be in a critical condition.

Dr. J. E. Haughey was appointed county physician of Winnebago County for the year beginning Oct. 1, 1907, in place of Dr. Crawford.

Dr. S. C. McClelland of Decatur has been appointed a member of the Board of Managers of the James Milliken University, located in that town.

Dr. E. E. Rohrabough, San Jose, has been elected secretary of the Mason County Medical Society, vice Dr. Athel L. Cook, Mason City, resigned.

Dr. W. Hope Davis of San Antonio, Texas, for many years a practitioner of Springfield, Ill., was recently stricken with paralysis and is in a critical condition at his home in Texas.



Dr. Joseph E. Assay, Rock Island, while returning from Chicago in an automobile, sustained a painful injury of the leg by running into a bridge, which was being rebuilt, near Erie.

Dr. Albert J. Ochsner of Chicago was the guest of honor at a dinner given by Dr. John C. Morfit, St. Louis, October 18, and in the evening Dr. Herman Tuholske gave a reception at his home for Dr. Ochsner.

Dr. Edward A. Foley, Woodstock, formerly assistant physician in the Illinois Northern Hospital for the Insane, Elgin, has been appointed assistant physician at the Illinois Eastern Hospital for the Insane, Kankakee.

Dr. F. E. Wallace of Monmouth, Ill., is moving to Pueblo, Colo., where he will practice his specialty of the eye, ear, nose and throat. He has spent the past fourteen months in clinics and schools in Chicago in the study of these branches.

The governor has named Drs. James A. Egan, Springfield, secretary of the State Board of Health, William L. Baum, Chicago, president of the Illinois State Medical Society, Alden E. Smith, Freeport, president of the Illinois Homeopathic Association, and Charles H. Merritt, Alton, president of the Illinois State Eclectic Medical Association, as delegates to the International Congress on Tuberculosis, to be held October next in Washington.

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#### NEWS ITEMS.

The Ravenswood Hospital of Chicago has recently issued its first bulletin of information for the school for nurses.

At the sixth annual concert for the benefit of the Presbyterian Hospital of Chicago, November 4, the proceeds were \$2,500.

The Bazaar of Nations, given by the Methodist Churches of the city of Chicago for the benefit of the Wesley Hospital, netted \$10,000.

The Rush Medical College has recently given notice to members of the Chicago Medical Society that its library is open to all physicians.

Dr. C. L. Boyd, after a checkered career in several Illinois cities, has come to grief at Clinton, where he had been practicing as a charlatan for several months.

One Professor Braun, a so-called mentipath healer, formerly of Taylorville, but recently of Peoria, was arrested at Peoria for practicing medicine without a license.

The Ottawa Tent Colony has recently opened a department for the non-surgical treatment of postoperative and inoperable cases of tuberculosis.

At the dance and banquet given November 9 by the Jewish Consumptives' Relief Association of Chicago nearly \$1,500 was raised for the Jewish Home for Consumptives.

During the last fiscal year the Provident Hospital and Training School of Chicago cared for 1,117 patients and treated about 4,000 at its dispensary. The management is making an appeal to its friends to liquidate the hospital debt of \$5,000.

The corporation counsel of Chicago has refused a permit to the Eye, Ear, Nose and Throat Hospital to erect a twelve-story building on its property at Washington and Franklin streets, on the ground that the code limits the heights of hospitals to six stories.

Plans for extending the work of the Chicago Charity Hospital were discussed at the annual meeting. During the year 556 patients were cared for and the hospital has accommodations for 30 patients. Dr. Franklin H. Martin is chief of the medical staff.

As a tribute to Sister M. Raphael, for twenty-eight years superior of Mercy Hospital, the medical staff, internes, and alumni gave her a linen shower October 24. The linen will be devoted to furnishing the new addition to the hospital, which will be opened about February 1.

Work on the University Hospital at Lincoln and Congress streets was begun October 4. The hospital will be used exclusively by teachers and students of the Department of Medicine of the University of Illinois. There will be accommodations for eighty patients, private rooms and wards. The building will be a four-story structure, 134 by 150 feet, and is to cost about \$120,000.

The Lithuanian-Americans of Chicago are planning a hospital to accommodate 500 patients. Six acres at Forty-sixth street and Western avenue have been purchased and an option is held on six acres adjoining. The medical staff of the board of control of the institution are Drs. Bayard Holmes, Kasimir A. Butkiewicz and F. Robert Zeit.

A fire occurred in the Kane County Almshouse, Batavia, November 6, which did \$25,000 worth of damage and in which forty insane female patients narrowly escaped death. A fire at the German Hospital, Chicago, November 5, caused considerable damage and necessitated the removal of thirty patients. Fortunately, through the exertions of the internes and nurses, no casualty occurred.

The Board of County Commissioners of Cass County has advertised for physicians' bids for taking care of paupers and furnishing medicine. During recent years physicians of the county have refused to wait on county charges on the competitive plan, except at Beardstown, where Dr. Unland is the county physician.

Dr. J. N. Dixon was declared by Judge Jones of the Probate Court of Sangamon County to be insane at the time he wrote his will a short time before his death. Attorney Arthur M. Fitzgerald and Dr. H. C. Blankmeyer, witnesses of the will, testified that they did not believe that the testator was of sound mind and memory at the time he made the will. Property consisting of \$6,000 personalty and some real estate was left by Dr. Dixon.

Supt. John C. Whitman of the Bridewell, Dr. Alice Hamilton and Miss Jane Addams of Hull House have appeared before a committee of the state legislature to urge the enactment of a law providing a more stringent penalty than at present exists for druggists who sell cocaine and its preparation to victims of the habit. The law now provides a fine of not less than \$1,000, a term of one year in the Bridewell, or both, and, further, that any druggist shall, on conviction, be deprived of his license.

Several charitable bequests are to be found in the will of the late Nelson Morris, amounting to \$70,000 and to be distributed as follows: Free hospital beds, \$15,000; Michael Reese Hospital, \$10,000; Hebrew Orphan Asylum, Cleveland, \$10,000; Home for Aged Jews, Chicago, \$5,000; Jewish Orphan Asylum, Chicago, \$10,000; Visiting Nurse Association, \$5,000; Chicago Home for Incurables, \$5,000; Home for Destitute Crippled Children, \$5,000; Little Sisters of the Poor, 5148 Prairie avenue, \$5,000.

Ground has been broken for the erection of the babies' pavilion of the Children's Memorial Hospital. The first money which was secured for this pavilion was the result of the kirmess given in Orchestra Hall in January, 1906, by the Cribside Society, of which Mrs. Stanley Field was at that time president. The kirmess, which was held for three evenings, was the society event of that season and thousands of dollars were cleared. The Children's Memorial Hospital has always been a favorite charity of the fashionable people of Chicago, and to the original sum for the babies' pavilion has been added enough to make the building possible. The pavilion is to face Orchard street, just opposite the present hospital building, which is at 606 Fullerton Avenue. It will have cribs for twenty babies.

The attention of Chicago physicians is called by the superintendent of the White Cross Nurse Association that they are prepared to furnish nurses to poor patients. Stations are established in various portions of the city and the addresses may be obtained on application to Harriet Fulmer, superintendent, 79 Dearborn street, Telephone Central 1142. For more effective dispensing work, where it is important to have intelligent nursing, the superintendent will cheerfully send on request a nurse to get the proper instructions and see that the patient carries out the treatment outlined and report back the progress of the case to the physician in charge. Dr. Richard Cabot, of Boston, in a letter to Miss Fulmer, emphasizes the importance of this co-operation by stating that it is essential to both the patient and the physician to get satisfactory results. "That at least one-half can not be efficiently treated without the aid of a visiting nurse. Without this help from a nurse as a connecting link between hospital and home, the doctor is as powerless (in many cases) as a man without arms, eyes or ears. He is not in touch with the facts and inevitably makes many blunders, ludicrous or pathetic. Moreover, it is extravagant, wasteful of precious time and money to run a dispensary without a system of visiting nurses. For unless we are to follow up our cases and see that treatment really accomplishes its object we are firing our ammunition into the air."

The Children's Hospital Society of Chicago has announced that clean pure milk whole or modified can be obtained for the children of the poor at a minimum price at any of the following stations: Chicago Common, Grand avenue and Morgan street; Children's South Side Dispensary, 636 Jackson Park avenue; Christopher House, 120 East Fullerton avenue; Gads Hill Center, Twenty-second and Robey streets; Hull House, 335 South Halsted street; Jackson Park Sanitarium, Sixty-

fourth and the lake; Little Wanderers' Day Nursery, 283 North Oakley avenue; Little Wanderers' Day Nursery, 832 W. Forty-ninth street; Maxwell Settlement, 485 South Clinton street; Northwestern University Settlement, Augusta and Noble streets; Olivet House, 46 Vedder street; Rush Medical Dispensary, 757 West Harrison street; St. Elizabeth Day Nursery, 655 North Ashland avenue; Settlement House, 783 Armitage avenue; United Hebrew Charities Dispensary, Maxwell and Morgan streets; Armour Square, Thirty-third street and Fifth avenue; Cornell Square, Fiftieth and Wood streets; David Square, Forty-fourth and Marshfield avenue; Mark White Square, Twenty-ninth and Halsted streets; Ogden Park, Sixty-fourth street and Center avenue; Sherman Park, Fifty-second street and Center avenue. The members of the profession are earnestly urged to refer their patients to the above stations. For further information telephone the Laboratory, Monroe 3332, at West Adams street.

The following resolutions were adopted by the Executive Committee of the American National Red Cross, Oct. 18, 1907: .

WHEREAS, By international agreement in the Treaty of Geneva, 1864, and the revised Treaty of Geneva, 1906, "the emblem of the Red Cross on a white ground and the words Red Cross or Geneva Cross" were adopted to designate the personnel protected by this Convention, and

WHEREAS, The Treaty further provides (Article 23) that "the emblem of the Red Cross on a white ground and the words Red Cross or Geneva Cross can only be used whether in time of peace or war, to protect or designate sanitary formations and establishments, the personnel and material protected by this Convention," and

WHEREAS, The American National Red Cross comes under the regulations of this Treaty according to Article 10, "volunteer aid societies, duly recognized and authorized by their respective Governments," such recognition and authority having been conferred upon the American National Red Cross in the Charter granted by Congress, January 5, 1905, Sec. 2. "The corporation hereby created is designated as the organization which is authorized to act in matters of relief under said Treaty," and, furthermore,

WHEREAS, In the Revised Treaty of Geneva, 1906, in Article 27, it is provided that "the signatory powers whose legislation should not now be adequate, engage to take or recommend to their legislatures such measures as may be necessary to prevent the use by private persons or by societies other than those upon which this Convention confers the right thereto of the emblem or name of the Red Cross or Geneva Cross," be it

*Resolved*, That the Executive Committee of the American National Red Cross requests that all hospitals, health departments and like institutions kindly desist from the use of the Red Cross created for the special purpose mentioned above, and suggests that for it should be substituted some other insignia, such as a green St. Andrew's Cross on a white ground, to be named the "Hospital Cross," and used to designate all hospitals (save such as are under the Medical Departments of the Army and Navy and the authorized volunteer aid society of the Government), all health departments and like institutions, and further be it

*Resolved*, That the Executive Committee of the American National Red Cross likewise requests that all individuals or business firms and corporations who employ the Geneva Red Cross for business purposes, kindly desist from such use, gradually withdrawing its employment and substituting some other distinguishing mark.



## MEDICAL SOCIETY NOTES.

Dr. Henry B. Favill delivered an address at the Evanston Branch on Thursday, Oct. 31, 1907.

Dr. Arnold C. Klebs gave a public lecture in the Chicago Public Library Building Saturday evening, November 16, on the "Modern Treatment of Tuberculosis."

The Physicians' Club of Chicago is about to publish a new booklet, giving the names and addresses of its members and other matters of information relative to the club.

At a meeting held October 22 the Chicago Medical Examiners' Association adopted resolutions severing its affiliation with the American Medical Examiners' Association.

At the meeting of the Chicago Medical Society of Oct. 16, 1907, the subject of the city milk supply was discussed. A report of this discussion appears in the current issue of *THE JOURNAL*.

Dr. Charles L. Mix delivered a lecture in the Public Library Building on Saturday evening, Nov. 9, 1907, on the subject, "Pneumonia, Its Cause and Prevention." This is one of the lectures delivered under the direction of the Chicago Medical Society.

The physicians of Hoopeston met recently and perfected an organization to be known as the Hoopeston Medical Society. Dr. Lemuel B. Russell was elected president; Dr. Albert M. Earel, vice-president, and Dr. Robert S. McCaughey, secretary-treasurer.

At the annual meeting of the Chicago Gynecological Society, held October 18, the following officers were elected: President, Dr. Joseph B. DeLee; vice-presidents, Drs. Charles E. Paddock and Rudolph W. Holmes; secretary, Dr. Henry F. Lewis; treasurer, Dr. Charles B. Reed; editor, Dr. Frank W. Lynch; pathologist, Dr. George Schmauch, and counselor, Dr. Emil Ries.

At the annual meeting of the Chicago Surgical Society the following officers were elected for the ensuing year: President, Dr. A. J. Ochsenr; vice-president, Dr. A. E. Halsted; secretary, Dr. F. A. Besley; treasurer, Dr. J. C. Hollister; counselor, Dr. D. W. Graham; counselor of the Chicago Medical Society, Dr. M. L. Harris; alternate counselor, Dr. A. D. Bevan.

The sixty-eighth annual session of the Military Tract Medical Association was held at Bushnell, October 17 and 18, under the presidency of Dr. John P. Roark of that city. Peoria was selected as the place of meeting in 1908, and the following officers were elected: President, Dr. Samuel C. Stremmel, Macomb; Vice-President, Dr. Ernest E. Davis, Avon, and Secretary-Treasurer, Dr. Ralph C. Matheny, Galesburg.

The Military Tract Medical Association held its sixty-eighth session at Bushnell, Ill., October 17 to 18, this association comprising the territory between the Illinois and Mississippi rivers. Dr. J. P. Roark, of Bushnell, President of this association, delivered an address on "Specific Infection of the Female as it Concerns the General Practitioner." An excellent program, both scientific and social, was prepared by the committee for the visiting physicians and their wives.

The Chicago Gynecological Society has announced that at its December meeting the subject of discussion will be "Scopolamin-Morphin Anesthesia." It is desired that any members of the Chicago Medical Society

or others who have had experience with this or similar methods will formulate their statistics and join in the discussion of the subject. All interested are invited to attend the meeting, due notice of which will appear in *The Bulletin* of the Chicago Medical Society.

The Douglas Park Branch of the Chicago Medical Society held a stag at the Pilsen Club House, Northwest corner of Ashland avenue and Twentieth street, on Thursday evening, Nov. 14, 1907, at which a hundred physicians and their friends were present. Among the visitors were noted several members of Aux Plaines Branch and some from the West Side Branch, and several prominent druggists of the district. The program consisted of a supper, after which the evening was spent in telling stories, some good singing and good smoking, which was continued until 12 o'clock, and the meeting adjourned. Every one present went home feeling that they had spent a very pleasant evening and praising the Entertainment Committee for the good time they had and hoping they may see fit to have another in the near future.

At the regular monthly meeting of the council of the Chicago Medical Society, held November 12, the consideration of the establishment of a business bureau for the society was made a special item of business. The committee on "Business Bureau" made a detailed report of their work, together with several propositions which they had received to initiate the bureau. This was thoroughly discussed and the council voted to recommend to the board of trustees that a "Business Bureau" be established for the Chicago Medical Society. The present committee, consisting of A. B. Keys, Chairman; B. L. Sippy and George Tarnowsky, were elected to continue in office and promote the details necessary to the establishment of this bureau, providing the trustees accept the recommendation of the Council.

The West Side Branch held its regular meeting for the year in the amphitheater of the Cook County Hospital Thursday evening, Oct. 17, 1907. Among the eighty-five present were Drs. Henry B. Favill and Robert T. Gillmore and the presidents and secretaries of several branch societies, all of whom received a hearty welcome. The address of Dr. Corwin was timely and to the point. The remarks by Dr. Favill and others were relative to the workings of the various branch societies. The branch committees are as follows: Social, Carey Culbertson, chairman, A. E. Bertling, J. J. Stoll, J. S. Nagel, J. A. Riley, Mary Johnstone and Alice Hamilton. Organization, John J. Anderson, chairman; others to be selected by the chairman. Program, William J. Butler, chairman, Bernard Fantus, Anton Jacobson, Mary Porter and Allan E. Stewart. Board of Editors, John Edwin Rhodes, chairman, Frederick Tice, I. N. Danforth.

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The Organization Committee of the Chicago Medical Society has taken very considerable space in *The Bulletin* of November 16 in order to place before the physicians in Cook County the necessity for a complete and perfect organization of the profession.

First.—*Membership in the District Society.* These societies are supported by the general society, and permit a close relationship and better

opportunities for interchange of medical experiences and better acquaintance among the general practitioners in the district.

Second.—*Membership in the Chicago Medical Society.* This includes the privilege of attendance at all the regular meetings, together with *The Bulletin*, which is issued weekly, and affiliation and association with the greater number of medical men.

Third.—*Membership in the Illinois State Medical Society.* A member of a county society is *ipso facto* a member of the Illinois State Medical Society.

Fourth.—*The Journal of the Illinois State Medical Society.* This journal, owned and published by the state society, is sent free to every member; not only members of the society, but of the profession as well, should take pride in building up and maintaining this JOURNAL, which can be made one of the most influential medical journals in the United States, published monthly. It contains reports of all the meetings of the county society. The transactions of the Chicago Medical Society and its district and affiliated branches, original articles by well-known writers, the proceedings and papers of the Illinois State Medical Society and a large amount of news of interest to medical men throughout the state. The price of THE JOURNAL to non-members is \$2.00 a year. It is sent free to all members of the Chicago Medical Society as one of the privileges of membership.

Fifth.—*Medical Defense.* Out of each five dollars of annual dues paid to the treasurer of the Chicago Medical Society the trustees are required to turn one dollar over to the Medical Defense Committee of the Illinois State Medical Society for the protection and defense of members of the society against whom suits for malpractice or damages may be brought. This feature alone is one of the most valuable of all the privileges of membership. The last annual report of the Medicolegal Committee shows that up to that time in no suit against any member of the society had damages been allowed.

Sixth.—*Eligibility to Membership in the American Medical Association.* The only way in which a physician can become a member of the state or national organization is through the county society. At present the membership fees for the American Medical Association are \$5.00, which includes *The Journal* of the American Medical Association.

Seventh.—*Reformation of Medical Conditions.* The organized profession of the United States is to-day stronger and more influential than ever before in the history of this country. Among the many perplexing problems which have interested the physicians and are now being considered by the organized profession may be mentioned contract practice, lodge practice, free dispensaries, division of fees, unjust and unreasonable fee taking, illegitimate and unethical methods of practice, advertising and irregular practitioners, all of which can be handled only by organized effort.

Eighth.—*Regulations of Pharmaceutical Preparations.* The organized profession, through its national body, the American Medical Association, has established a committee, known as the Council on Pharmacy

and Chemistry, for the purpose of examining, analyzing and reporting on all non-official pharmaceutical preparations offered to the profession. The committee is now carrying on the work, and from time to time issues a report to the profession embodying its findings on the most important of these proprietary preparations, which the general practitioner is constantly being importuned to buy and prescribe for his patients. This will afford each individual physician reliable and scientifically accurate information regarding the exact character of the drugs and preparations which he is asked to use, as this information will come from an impartial and unbiased body of recognized scientific authority, and will be infinitely more worthy of credence than the biased and ex parte statements of the manufacturers and agents. This movement, which is of vital importance to every practicing physician, deserves the support of all members of the profession, regardless of society affiliations.

Ninth.—*The Completion of Medical Organization in Cook County.* Complete organization can accomplish great good along the lines of suppression of quackery, the regulation of medical colleges with the adoption of a higher standard for graduation, increased stringency on the part of the State Board of Health regarding the new applicants for licensure, together with the adoption of reciprocity with other state boards.

At the November meeting of the West Side Branch of the Chicago Medical Society occurred the discussion of the free-treatment problem. This subject is of vital importance to this particular branch, as many of the dispensaries are to be found in its district.

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At the October meeting of the Council of the Chicago Medical Society, which was likewise the annual meeting, occurred the reports of all the committees of that society, some of which have more than a local interest and influence. The following are some of the reports given at that meeting and later published in *The Bulletin*:

#### ETHICAL RELATION.

Much of the work of the Committee on Ethical Relation is in the nature of secret service, and it has been the policy of the committee, a policy endorsed by the Council of the Society, to publish none of this work in the regular issues of *The Bulletin*, except that upon which some definite action has been taken. This is to prevent the unpleasant and unfair notoriety that would result to any member from publishing any complaints that were made against him.

Much of the work of the committee, therefore, has been concerned with investigating questions of misconduct, adjusting disagreements of members and generally in handling subjects that are not known outside of the committee. When it has become necessary to take definite action on any given case, such subject has come before the Council and in some instances, as you know, the results have been published in *The Bulletin*.

It has been the endeavor of the committee to consider all the delicate subjects that come before it in the most careful and unbiased way, with a sincere effort to avoid prejudging any case or doing anything that



might be construed as an injustice. It must be quite clear that such work is not the most agreeable, and, if done conscientiously, is an important and arduous task.

Probably physicians are dominated by self-interest to just about the same extent as individuals of the same rank and the same mental qualifications in other walks of life; and it has seemed clear to the committee from the number and nature of the complaints that there is need for a little missionary work among the heathen of our own profession. The committee suggested in a previous report, and now urges it again, that the society could very profitably devote one or more evenings of the year to a consideration of such important subjects as "The Relation of the Physician to His Brother Physician and to the Medical Profession."

Many of the younger men of the profession are apparently quite unfamiliar with the "code of ethics" or the rules of etiquette that obtain in the profession and in the locality where they begin practice, and numerous instances of misconduct can be attributed to ignorance. Such men should be taught medical ethics in the medical school, and later should hear the subject properly presented in their medical society, and the Committee on Ethical Relations would have less work to do.

W. H. WILDER, Chairman.

#### REPORT OF THE PUBLIC RELATIONS COMMITTEE.

Because of the fact that the State Legislature was in session last year, the work of the Public Relations Committee was largely along legislative lines, in which work it acted in harmony and conjunction with the Public Policy Committee of the Illinois State Medical Society and the Organization Committee of this body.

This work entailed frequent meetings and much correspondence as well as a trip to Springfield. It led to some satisfactory results and some disappointments. In general, it may be said that our obstructive efforts were more effective than the constructive. Thus, for example, we were able to defeat the various proposed acts of legislation to which the Society was opposed, but failed to secure the passage of other acts in which we were interested. The drug bill failed of passage because the committees having the matter in charge allowed themselves to be persuaded into doing something which their judgment has led them to avoid attempting, namely, too stringent legislation. I believe that a compromise bill satisfactory to both physicians and druggists is the thing to work for and later try for amendments if the bill proves unsatisfactory. Work during the coming year will have much less to do with questions of legislature, but just what lines will be followed must be determined, at least in part, by circumstances as they arise.

R. B. PREBLE, Chairman.

#### ORGANIZATION COMMITTEE.

I submit herewith the report of the work of the Organization Committee for the past year:

1. As shown in the report made at the annual meeting of the Chicago Medical Society on June 19, there were added to the Chicago Medical Society from July 22, 1907, 228 new members.

2. New Societies.—During the past year, in accordance with instructions received from the Council, a new district has been formed in the extreme south end of the county, with the following lines as boundaries; East, Indiana state line; north, city limits; west, Rock Island Railroad tracks; south, county line. This district is known as the Chicago Heights District, No. 13. A branch society, known as the Chicago Heights Branch, has been organized in the district.

3. During the past year a large amount of work has been done by the Organization Committee under the direction of the Council and the Committee on Public Relations. Most of this work was in connection with various bills introduced into the State Legislature, principally the pure food bill, the two bills presented by the State Board of Health, amending our present medical practice act and increasing the powers of the State Board; the narcotic drug bill and the nurses' registration bill, all of which became laws with the exception of the narcotic drug bill. Active work was done by the members of the Organization Committee against the optometry bill, itinerant vendors bill, various osteopathic bills, etc. It is a matter of congratulation to the organized profession that no bill which it opposed was passed by the legislature, except the optometry bill, Senate 845, which was promptly vetoed by Governor Deneen. In this connection I would again emphasize the statement in the report last spring to the general society: "Experience has shown that quiet and undemonstrative discussion of proposed districts in legislature with the members representing the various Cook County districts in the House or Senate is of much more real value than are letters and telegrams sent at the last moment when the bill is already on the floor of the House. Such measures can only be regarded as emergency measures to be used when time does not permit of any other."

4. Organization Work for the Coming Year.—At the October meeting of the Council of the Illinois State Medical Society arrangements were made with the American Medical Association by which cooperative organization work by trained organizers could be taken up in the state of Illinois, the organizers representing the county, the state and national organization. The coming meeting of the American Medical Association in Chicago, together with the advantages for membership offered by our county society, presents an unusually favorable opportunity for further increasing the membership of our organization. It is planned to have this work begin in Chicago at once and to continue it during the next three months, completing the organization work, if possible, before the holidays. This will, of course, only supplement and in no way replace the work of the organization committees, but as much time has been required of members of this committee in the last five years for this work, and as the greatly diminished number of eligible non-members makes it necessary to devote an increasing amount of time to personal calls, etc., it seems that the possibilities of volunteer organization work in the county

have been well-nigh exhausted. It is, therefore, all the more desirable to take full advantage of this arrangement between the state society and the American Medical Association, which will unquestionably be of great benefit to the Chicago Medical Society. As the legislature will not meet in regular session during the year, it will be possible to devote most of the time of the committee to working for local measures under the direction of the Council and the Committee on Public Relation.

FREDERICK R. GREEN, Chairman.

#### COMMITTEE ON AMERICAN PHARMACEUTICAL ASSOCIATION.

Your committee reports that they have met with the Chicago Branch of the American Pharmaceutical Association and also held a subsequent meeting with the Medical Relation Committee of the Chicago Branch, at which time they presented the following tentative precepts concerning the physician's prescriptions:

First.—The prescription is an utterance of the prescriber, who alone should direct and control its employment. It should, whenever practicable, carry the name of the patient, the age in years if a minor, and the date when written.

Second.—The pharmacist who prepares the medicine should retain the prescription as reference for his services and as record for a certain limited period, not less than five years, for the protection of the prescriber, himself and the patient.

Third.—The medicine prescribed should be supplied not more than once on the same prescription, (1) if ordered by the prescriber "not to be repeated (n. rep.)"; (2) if containing medical substances commonly called narcotic or habit-forming drugs; (3) if called for by some person known not to be the original holder.

Fourth.—Copy of the prescription must be furnished and should be written on an especial blank containing a declaration that it is a copy of a prescription which has been delivered to the original holder, and is not to be refilled except on order of the prescriber. The copy is made without recourse to possible error.

Your committee presents their precepts or declarations for your consideration without recommendation, but after some deliberation does not believe the physician's right to furnish to his own patients such remedies as in his judgment they require should in any manner be curtailed.

The following delegates and alternates to the house of delegates of the Illinois State Medical Society were elected: Delegates, R. R. Campbell, George de Tarnowsky, J. R. Ballinger, J. V. Fowler, J. H. Hess, Wm. A. Evans, J. L. Abt, Frank Billings, C. S. Bacon, G. W. Green, E. W. Ryerson, M. H. Luken, J. R. Pennington; alternates, David Lieberthal, George E. Baxter, Mary McEwen, F. L. Rose, H. N. Moyer, C. D. Pence, J. L. Miller, H. G. Anthony, A. W. McLaughlin, O. S. Ormby, A. M. Parker, A. M. Corwin, D. W. Graham.

Dr. Wm. E. Morgan was elected to the office of trustee, vice Dr. Henry B. Favill, resigned.

The Western Illinois District Medical Society met at Quincy, October 26, and elected the following officers for the ensuing year: R. J. Christy of Quincy, president; Dr. J. A. McGee of Virginia and Dr. J. W. Adams of Carrollton, respectively, first and second vice-presidents; Dr. W. P. Duncan of Jacksonville, secretary and treasurer; Dr. F. P. Norbury of Jacksonville, Dr. L. H. A. Nickerson of Quincy and Dr. H. A. Chapin of Whitehall, board of censors. Papers on themes interesting to the profession were read by Drs. Waldo Fisher of Alton, H. A. Chapin of Whitehall, R. J. Christie, Jr., and E. B. Montgomery of Quincy, J. C. McEnery, F. P. Norbury and W. K. McLaughlin of Jacksonville. The visitors were entertained at a banquet given at the Hotel Newcomb.

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### HEALTH BOARDS AND PUBLIC HEALTH.

Diphtheria is prevalent at Stewardson.

Several new cases of diphtheria are reported from Forreston.

Diphtheria in Johnson Township has closed the Center School.

The prevalence of diphtheria has caused the public schools of Kemper to be closed.

Several cases of smallpox are said to exist in the neighborhood of Deer Creek.

The public schools at Bement were closed, October 28, on account of an epidemic of scarlet fever.

There are said to be 11 cases of diphtheria at the Illinois Eastern Hospital for the Insane, Hospital.

On account of the prevalence of diphtheria, St. Joseph's Parochial School, Elgin, where six cases occurred, has been closed.

The president of the Board of Health of Streator reports that diphtheria is prevalent, but under control, and that there is no need for alarm.

Dr. J. C. Westervelt, Shelbyville, has been dispatched to Carrier Mills, Saline County, to investigate a reported epidemic of scarlet fever.

Complaints have been made that the Village Board of Spaulding is not enforcing quarantine regulations against smallpox which prevails at that place.

Of 117 retail milk dealers of Chicago summoned to appear before Judge Scovel, seven were fined sums ranging from \$10 to \$50. Thirty-four cases were continued.

The first Harvey Society lecture was delivered by Professor E. O. Jordan of Chicago University on Saturday evening, October 26, at 8:30 p. m. Subject: "The Problems of Sanitation."

It is reported that the Dunning institutions will soon be turned over to the State of Illinois, to be used as an insane hospital. It is expected that Cook County will have a new poor farm and infirmary.

During September and October 126,790 medical inspections of school children of Chicago were made, and 3,335 were excluded from schools; 341 bacterial examinations and 12,803 vaccinations were made.

The Illinois State Board of Health has recently sent out a number of pamphlets on the subject of smallpox and its prevention. These pamph-



lets are timely and will aid greatly in the prevention and suppression of contagious diseases.

The secretary of the State Board of Health has called the attention of the physicians and the local health authorities to the rule of the State Board of Health, which requires that all cases of smallpox be immediately reported to the board.

The Minnesota State Sanitarium for Tuberculosis was opened for patients November 1. It is located near Walker, Minn. Its location is ideal for the treatment of tuberculosis, and marks another advance in the progress in state medicine.

The medical profession has always an interest in any effort made either by its own organization which has for its object the betterment of the health of the people of the public or the increased physical comfort or moral uplift of the community.

Dr. Samuel Dixon, State Commissioner of Health of Pennsylvania, has ordered that the sheets on the beds of the Pullman sleeping cars must cover the blankets. He has also ordered that the porters cease brushing clothes in the aisles of the cars.

It is reported that an epidemic of smallpox has broken out at the Chicago University. Some opposition to vaccination was entered by the school officials and members of the football team. This was quickly overcome, however, by the stand taken by the Health Department.

The first of the series of public lectures was delivered at the Chicago Public Library Building, Randolph street and Michigan avenue, on Saturday evening, Nov. 2, 1907, at 8 o'clock, by Dr. William A. Evans, Health Commissioner. Subject: "Problems of the Health Department."

The coroner of Cook County reports 365 sudden deaths for October, or 69 more than were reported for the previous month. Of the deaths, 153 were due to natural causes, 40 to railroad accidents, 31 to suicide, 29 to falls, 22 to street car accidents, 21 to homicide, 13 each to burns and scalds and drowning, and 8 to tetanus.

The Health Department of Chicago reports that the number of contagious diseases at present existing is normal, with the exception of diphtheria, of which an unusual number of cases have been found. The inspectors who have looked into the matter find that little effort is being made to immunize those exposed to diphtheria.

During one week in Chicago in October 127 cases of diphtheria were reported with 19 deaths. The disease is very widely spread, more cases being reported in the southern portion of the stock yards district than elsewhere. The Health Department gives warning that an epidemic is to be expected unless quarantine is better observed than at present.

The attorney-general, in an opinion rendered November 7, holds that an osteopath is not guilty of unprofessional conduct within the meaning of the statute by styling himself "doctor," and that the State Board of Health can not, on this account, revoke his license. The term "unprofessional conduct" is held to mean dishonorable conduct in the practice of his profession.

The State Board of Health has had prepared and introduced a bill to permit the State Board of Health to admit to examination students who have completed four full years of college work, and to issue them temporary licenses for a period not to exceed 18 months, if they pass the examination. This bill has been prepared in the interests of the students of those colleges that have a course extending over five years.

Senate bill No. 581 and House bill No. 914 would repeal the section of the birth and death act of the state that provides for the payment of 25 cents for each report of birth and death, and for an appropriation of the funds necessary for the various counties. The State Board of Health is opposing the passage of this bill, and the secretary asks the physicians of the state to request their representatives to use their influence against it. He has made a similar request of the secretary of each county society.

In the last *Bulletin* issued by the Illinois State Board of Health, direct attention was called to the stations where free antitoxin may be obtained in the various counties in the state. The State Board of Health furnishes this antitoxin free of charge, without consideration of the patients' financial standing. It is done for the purpose of protecting the people from a communicable disease. The board desires that the physician shall write a prescription for the antitoxin and that he shall sign a receipt for the same on the blank form which is attached to each package. Detailed instructions are given in this issue of the *Bulletin*.

The City Council of Chicago, on November 4, passed an ordinance establishing "zones of quiet," extending 250 feet in each direction from all hospitals. Within that area "the making, causing or permitting of any unnecessary noise or the playing of itinerant musicians on the public streets, avenues or alleys that disturbs or tends to disturb the peace or quiet of any of the inmates of the hospital" is declared to be a nuisance. For violation of the ordinance a fine of from \$2 to \$50 is provided. These districts are to be marked by signs bearing the legend, "Notice. Zone of Quiet," placed on lamp posts or in conspicuous places.

A bill prepared by C. H. Avery of the State Board of Pharmacy is to be introduced in the legislature. It is intended to prevent the sale of cocain, if this can be accomplished by legal enactment. The bill proscribes the illegal sale of cocain and also "alpha and beta eucain, or any salt or any compound containing any of the foregoing substances or any of their salts or compounds or derivatives." The only legal sale is on the prescription of a registered physician, which must give the name and address of the person prescribed for and the date it was filled. It can be filled but once and no copy can be made. Cocain may be sold at wholesale on the written order of any registered druggist, physician, veterinary surgeon or dentist, but the package must be plainly marked on the outside, showing what it contains, and the word "Poison" must be printed on the package in red ink. The punishment for violation of the law is a fine of not more than \$1,000, or imprisonment in jail for a term of one year or both.

The following amendment to the medical practice act was passed by the forty-fifth general assembly in October, 1907: "The State Board of

Health shall be empowered to establish a standard of preliminary education deemed requisite to admission to a medical college in 'good standing,' and to require satisfactory proof of the enforcement of this standard by medical colleges, provided that the board shall not recognize examinations of applicants for admission to medical colleges that have been conducted by the faculty officers of the medical college, and provided, further, that the diploma of an approved high school or equivalent school having a course of studies requiring an attendance through four school years, or a certificate of having passed a satisfactory examination before the state superintendent of the public instruction, or like state officer, in the studies embraced in the curriculum of such approved high school, shall be considered satisfactory evidence of preliminary education; and provided, still further, that the Illinois State Superintendent of Public Instruction shall be empowered to exact a fee of \$5.00 from each applicant for such examination. The board shall also be empowered to determine the standing of literary or scientific colleges, high schools, seminaries, normal schools, preparatory schools and the like, and the board may, in its discretion, accept equivalent of one or more of the seasons or terms prescribed in its requirements governing medical colleges in 'good standing,' attendance in a literary or scientific college in 'good standing,' as evidenced by a degree from said institution, providing that the standards of said literary or scientific colleges are fully equal to those of the State University of Illinois."

On the 24th of October the Rotary Club of Chicago were the hosts at a dinner given to representatives from the various departments of the city administration—the Hamilton Club, the Municipal Art League of Chicago, Commercial Club of Chicago, Third Presbyterian Church, the Chicago Industrial Club, City Club and Chicago Commercial Association. The object of this meeting was to discuss the necessity for means of obtaining public comfort stations in the city of Chicago. Addresses were delivered by the representatives from the clubs above mentioned and from the departments of the city administration, including the Health Department, which was represented by Dr. W. A. Evans, Health Commissioner. After discussion of this subject a resolution was unanimously adopted, organizing a United Association Committee of the City of Chicago on Public Comfort Stations, the committee to be composed of two members from each club represented and other associations which cared to take up this work. The following resolution was adopted at the close of this meeting:

*Resolved*, That the members of the Rotary Club of Chicago, present at a meeting held this 24th day of October, 1907, at which meeting were present representatives from the Hamilton Club, the Chicago Industrial Club, the Municipal Art League, the Commercial Club, the City Club, the Chicago Commercial Association, the Illinois Federation of Women's Clubs, and the Men's Club of Erie Chapel, realizing the great necessity for public comfort stations to promote the general health and comfort of the residents of Chicago, as well as strangers who come to the city, most heartily approve any movement toward the establishment of public

comfort stations in Chicago, and urge the city council to make a sufficient appropriation for this purpose, and recommend that a copy of this resolution be sent to each member of the city council.

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### INCORPORATIONS.

Home Medicine Co., La Harpe; capital decreased from \$50,000 to \$20,000.

College of Medicine and Clinical Association, Chicago; capital, \$20,000; conduct a hospital, dispensary and school.

Iron Up Medicine Company, Chicago; capital, \$10,000; incorporators, M. Craig Jones, George W. Killelea, Henry Horner.

Chicago Pasteur Institute, Chicago; capital, \$2,500; prevention and treatment of infectious diseases; incorporators, Antonio Lagorio, Carlotta Lagorio, C. H. Bruno.

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### CHANGE OF LOCATION.

Dr. Cohn has removed from St. Jacob, Ill.

Dr. Sheets has removed from Byron to Oregon, Ill.

Dr. Arthur Beebe has removed from Bartonville, Ill.

Dr. F. E. Wazell has removed from Chicago to Secor, Ill.

Dr. C. B. Campbell of Bethany has removed to Anna, Ill.

Dr. Mary Mars has removed from Evanston, Ill., to Seattle, Wash.

Dr. G. H. Eskridge has removed from Chicago to Houston, Texas.

Dr. A. D. Johannes has removed from Chicago to Oklahoma City, Okla.

Dr. Frank L. Hall, formerly of Perry, Ill., has removed to Jacksonville.

Dr. C. W. Carter, formerly of Batavia, Ill., has removed to Richmond, Ind.

Dr. W. E. Howard, formerly of Ohio, Ill., has removed to Biloxi, Miss.

Dr. Charles P. Donelson has removed from Chicago to Muskegon, Mich.

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### MARRIAGES.

I. H. TAYLOR, M.D., to Miss Ethel Kalb, both of Springfield, Oct. 30, 1907.

HARRY D. ORR, M.D., to Miss Helen Glanville Badenoch, both of Chicago, October 12.

G. DARIUS RUNKLE, M.D., Industry, Ill., to Miss Nellie R. Beaver, of Peoria, Ill., October 16.

DANIEL E. EGAN, M.D., Chatsworth, Ill., to Miss Ida H. Condren, of Streator, Ill., October 22.

WRIGHT C. WILLIAMS M.D., Peoria, Ill., to Miss Esculine Rowland, of Columbus, Ohio, October 9.



FREDERICK GRANT KETCHAM, M.D., to Miss Marie Snelly, both of Springfield, Ill., Nov. 16, 1907.

EDWARD C. MITCHELL, M.D., Carbondale, Ill., to Miss Catherine Devine, of Chicago, October 12.

ROBERT NELSON LANE, M.D., Danville, Ill., to Miss Mabel Lee Hanna, of Bardolph, Ill., October 16.

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### DEATHS.

ERNEST O. CREWE, M.D., formerly of Quiney, Ill., died in Chicago, October 14, after a long illness from kidney disease, aged 42.

W. W. ESSICK, M.D., for more than twenty years a prominent practitioner of Murphysboro, was killed by the Illinois Central switch engine in that city, October 15.

E. H. LEDUC, M.D., Medical Department of Linn University, Chicago, 1863, for many years a practitioner of Aurora, Ill., died at his home in Los Angeles, Cal., October 16, after a prolonged illness, aged 78.

N. F. FELKER, M.D., Chicago Medical College, 1874, died at his home in Amboy, Ill., Oct. 17, 1907, from heart disease, after a brief illness, aged 57 years. At time of death he was vice-president of the Lee County Medical Society.

HARRY BEACH STRUBLE, M.D., University of Pennsylvania, Department of Medicine, Philadelphia, 1900, for six months assistant surgeon at the National Soldiers' Home, Hampton, Va., died at his home in Chicago, Oct. 24, 1907, aged 28.

CHARLES V. STEPHENSON, M.D., Vanderbilt University Medical Department, Nashville, Tenn., 1894, of Centerville, Tenn., a member of the Tennessee State Medical Association and Hickman County Medical Society, died from lung disease, October 20, at the home of his wife in Almo, Ill.

DANIEL D. ROBERTS, M.D., University of Louisville (Ky.) Medical Department, 1871, of Paris, Ill., a member of the American Medical Association, coroner of Edgar County, Ill., from 1900 to 1904, and a member and chairman of the county board of supervisors, died suddenly at his home in Roll, Ind., October 10, of valvular heart disease, aged 37.

COLUMBUS BARLOW, M.D., counselor of the Illinois State Medical Society of Robinson, died at his residence in that city, Oct. 8, 1907, after a professional career of thirty years in and in the neighborhood of that city, in the 61st year of his age. Early in life he was engaged in a wagon and carriage shop for six years in order that he might raise money for a professional education. He graduated at the Cincinnati College of Medicine and Surgery in 1877. He took several postgraduate courses in Chicago. He helped to organize the Crawford County Medical Society in 1879 and served this society as president and secretary for three years. He was president of the Æsculapian Society of the Wabash Valley, a member of the American Medical Association, a pension examining surgeon and a valued member of the Illinois State Med-

ical Society. He was a loyal and consistent member of the Christian Church, a man of high integrity and pure and lofty patriotism. Dr. Barlow's benevolent presence will be greatly missed at the future meetings of the state medical society.

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### BOOK NOTICES.

Kirk's Hand-Book of Physiology, Revised and Rewritten by Charles Wilson Greene, A.M., Ph.D., Professor of Physiology and Pharmacology, University of Missouri. Sixth American Revision, with Five Hundred and Seven Illustrations, Including Many in Colors. New York, William Wood & Company, 1907.

Dr. Greene's edition of this well-known book is creditable alike to himself, his assistants and the publisher, and possibly no other standard of text-book presents the subject matter in a more lucid way than does this. In his prefatory notes Dr. Greene states that the general organization of the Hand-Book has been retained in the present revision, but the anatomical discussions have been very greatly reduced. The text has been largely rewritten throughout, and many new illustrations of physiological experiments have been introduced. An entirely new feature is the introduction, at the end of the chapters, of directions for laboratory work. It is hoped that this will greatly increase the utility of the book both to the teacher and to the student, and we believe that he has succeeded in carrying out his intention regarding the practical side of the subject in the most efficient manner.

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The Commoner Diseases of the Eye, How to Detect Them and How to Treat Them, for Students of Medicine, by Drs. Casey A. Wood and Thomas A. Woodruff of Chicago. W. T. Keener & Co., Chicago, Publishers.

The editors state that they have taken advantage of the exhaustion of two printings of this text-book to make a number of improvements in the third edition. Several new chapters, fully illustrated, have been added, so that they might present such details of the Physiology, Histology and Gross Anatomy of the orbit and its contents as will, they believe, sufficiently meet the demands of the advanced student of ophthalmology. A number of changes in and additions to the text have also been made that will further enhance the value of the work to the general practitioner.

The importance of nasal and neighboring cavity affections in diseases of the eye has lately been recognized, and they believe the admirable chapter by Dr. Frank Brawley, appearing in this section, will be fully appreciated.

The index and chapter headings have been considerably extended.

Finally, the number of illustrations have been greatly increased, some of them having been substituted for those used in former editions when such substitution was considered desirable to elucidate the text.











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